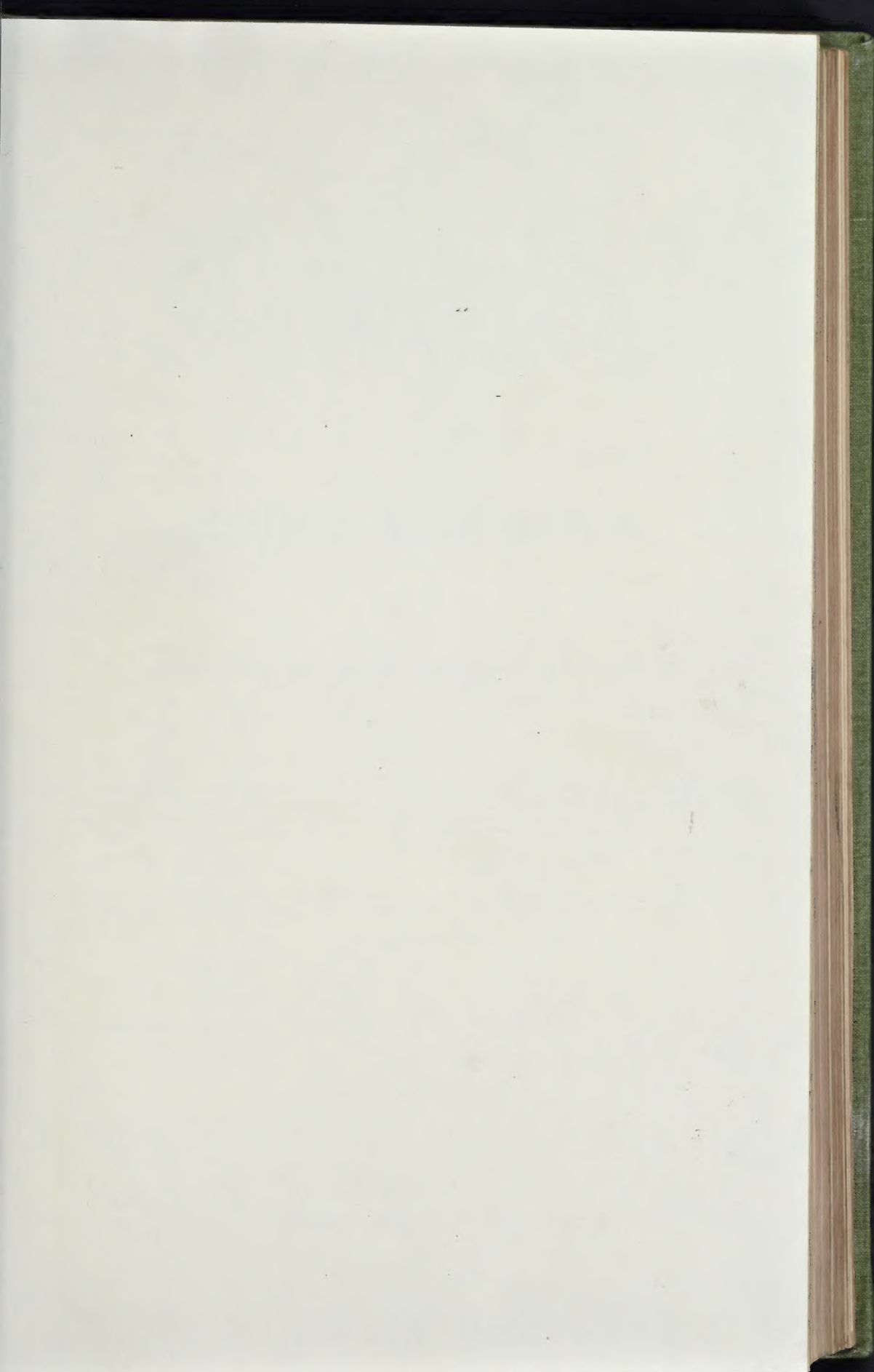


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# The Builder.

AN

**ILLUSTRATED WEEKLY MAGAZINE,**

FOR THE

**ARCHITECT, ENGINEER, OPERATIVE, AND ARTIST.**

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"Every man's proper mansion-house, and home, being the theater of his hospitality, the seat of self-fruition, the comfortablest part of his own life, the noblest of his sonne's inheritance, a kinde of private princedome, nay, to the possessors thereof, an epitome of the whole world, may well deserve, by these attributes, according to the degree of the master, to be decently and delightfully adorned."

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**VOLUME FOR 1850.**

**LONDON:**

**PUBLISHING OFFICE, YORK STREET, COVENT GARDEN.**



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\* Under such general heads as those of "Archæological," "Architectural," "Church," "Competition," "International Exhibition," "Metropolitan," "Railway," "Review," &c. &c., are sub-indices, to which collateral reference must more particularly be made, whether for proper names, as of towns, individuals, &c., or otherwise.

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# The Builder.

VOL. VIII.—No. 361.]

VOLUME FOR 1850.

[SATURDAY, JAN. 5.]

## TURNING OVER A NEW LEAF.

**I**F we mistake not, the new-come year will be one of great activity, anxious struggle, and eager reformation. We see on our own particular horizon the evidence of movement in all directions, and we are prepared, to the extent of our ability, to record, make known, advocate, or oppose, as the circumstances may seem to demand; always honestly, even though it be weakly, and with an anxious desire at all times to do right, even though we may occasionally seem to be going wrong. We have so often set before our readers, on commencing a fresh volume, the intentions and scope of our work, that it cannot be necessary to do so now, or to make any fresh promises to induce our old readers and friends to stand by us. Suffice it to say, that so far from relaxing in our efforts to raise the character of *THE BUILDER*, and to effect those improvements and give that information which are its great objects, these endeavours will be increased, encouraged as we are by the success which has attended them. The estimation in which *THE BUILDER* is held throughout the United Kingdom, conveyed to us by many flattering testimonies, the influence it exercises, and its constantly increasing circulation—are much more than commensurate with its merits. It shall be our unceasing endeavour to render it worthy of the favour which is shown to it.

Our title, "*THE BUILDER*," is still erroneously regarded by many in a narrow and confined sense,—as appertaining simply to the wants and advantage of a class. Looked at properly, and it is gradually becoming more and more so, it has a wide significance, and embraces legitimately the consideration of subjects which ought to interest nine-tenths of the population.

As regards classes, we care no more for architects or engineers than we do for builders,—each in their province,—and we are as warmly anxious to assist in bettering the condition and raising the character of workmen as we are to obtain information for their masters, and to secure for all three that consideration on the part of the public to which they are entitled. Each is interested in the prosperity of the other; all, as we said in our closing article last week, are mutually dependent—portions of a brotherhood, wherein, however, there is necessarily a gradation of ranks.

In the elevation of the operative classes we feel the deepest interest, and we will not cease from impressing on them the importance of self-culture,—the acquirement of knowledge,—the abandonment of habits that degrade.

"Those who think must govern those who toil."

He who plies his muscles daily in one direction, without attempting to improve his faculties, by applying to them the mental resources of which the human race is so

abundantly possessed, is but a degree less indolent than he who also refuses to give mere muscular exertion.

As a man obtains skill so does he become less a slave,—so will he find himself with greater intervals of leisure for further improvement,—so will he be able "to look around at nature and at art, and to devote somewhat of his life, between the cradle and the grave, to those nobler thoughts and aspirations, for which the human being can only prepare himself by shaking off the dust, and fleeing from the din, of busy life. It is thus that the great author, statesman, or engineer, while the world is wondering at the multiplicity and extent of the labours he accomplishes, may be met musing in the solitudes of the Alps; or perchance in these days, when his skilful labours have removed so many of the impediments of time and place, he may even find leisure to wander among the tombs of Thebes, or to gaze upon the Holy City. Alas! for the unskilled and unlaborious man, whose sole contribution to the exactness of busy civilization is some uniform movement of his body! The times are exacting; and since he fails to contribute his share in the intenseness of his exertion, he is bound to give it in continuity; to resign every hour seizable from needful rest, yet without satisfying his rigid master, the world. He is the true slave of civilization. He has not an hour which he can call his own. If his machine-like motion ceases, his bread ceases also; and every minute of relaxation must be bought with a portion of subsistence."

If we urge similarly on those who are to be masters, and on some in higher stations, the importance of a stringent and comprehensive education, the right "leading forth," so to speak (*e-duco*), we must not be accused of vanity or presumption; the writer is too acutely sensible of his own deficiencies to be prompted by such feelings; the advice proceeds from a remembrance of wasted hours and neglected opportunities, and a desire to save others vain regrets in after life. Men are now pushing on vigorously; they who pause will be passed—if not crushed.

In the time that is coming the architect who would take a place, and keep it, will need to be well prepared; and all must see, with pleasure, evidences, among the students of to-day, that they feel this necessity, and are buckling on their armour. Let them remember the teaching of a Hindoo sage, quoted by Mr. Fergusson in his excellent work on "*The Principles of Beauty*." "An architect," says he, and Vitruvius said the same thing before him, "should be conversant in all sciences, ever attentive to his avocation; of an unblemished character; generous, sincere, and devoid of enmity or jealousy."

We look for improvements in our own noble art in England: gradual they must necessarily be, but that they are coming we feel assured.

\* Hill's Social and Political Economy.

Much was done towards this when we began to think with Boileau, that—

"*Rien n'est beau que le vrai, le vrai seul est aimable.*"\*

The improvement of dwellings for the middle classes as well as the poor; the advancement of sanitary arrangements; the revision of the Metropolitan Buildings Act; the removal of the taxes on light, and bricks; the union of all persons connected with and interested in architecture, to be brought about by the removal of unwise restrictions in the laws of the Royal Institute of Architects; the improved administration of competitions; the proper recognition of artists; the establishment of the Provident Institution for Building Operatives;† improved supply of gas and pure water; the prevention of intra-mural burials and the provision of fitting places of interment (to which architects should now give consideration); improved modes of construction; the protection of the honourable and prudent builder against the speculative and dishonest,—are amongst the subjects which will claim our attention; and we shall regularly place before our readers correct illustrations of the principal new buildings that may be erected, and of such ancient works as may serve for models.

A continuance of the favour and consideration which have been shown to *THE BUILDER*, will go far towards ensuring to us, what we most cordially wish our readers,

A Happy New Year.

An index to our last volume, with title-page, is presented *gratuitously* with the present number. A title-page in colours may be had on application, also gratuitously, by those subscribers who prefer it to that which accompanies the index.‡

## ON THE SUPPLY OF THE CATTLE MARKETS AND THE ABATTOIRS OF PARIS.

BEFORE adopting any definite measures for the re-organization of the cattle market of London, it may be advisable to examine those which are followed in other countries. Now, as the whole of the continent derives its organization, in these municipal affairs, from the example set by Paris; and as the system adopted there is unquestionably the most perfect, it may be useful to place before your readers some notes upon the subject? It is true that after the elaborate treatise of Mr. Grantham, and after Lord R. Grosvenor's evidence before the Smithfield Committee, such notes may appear superfluous. But neither of those gentlemen have given complete statistical information as to the supply of the markets; nor

\* "Nothing is beautiful but the true; truth alone is lovely."—*Prin. Des.*

† Some of our readers will be glad to hear that the proposal made some time since to establish an "Architects' Benevolent Society," has now taken a form, and that an address from the promoters of it will be issued to the profession in a few days. Messrs. Cockerell, Barry, and Hardwick, have agreed to be trustees; Mr. Sydney Smirke, president, and Mr. Tate, treasurer.

‡ Covers for *THE BUILDER* may be obtained at the Office, price 2s., or the publisher will undertake to bind the numbers at 3s. per volume.



have they given the details connected with the construction, or the working of them, or of the abattoirs, necessary to a complete appreciation of all the details of the subject. Personally, I have been in a position, from a long residence in the country, to obtain access to documents they could not be aware of, in the course of their hurried visits; and, therefore, without pretending to exhaust the discussion, I flatter myself that the notes adjoined may elucidate some questions barely touched upon in their interesting communications. The subject, moreover, is of sufficient importance to excuse a trifling degree of repetition, in order to arrive at a perfect appreciation of the difficulties of the case, and of the most effectual means of obviating them.

Without further preamble, then, the district comprised within a circle of 100 kilomètres' radius of the Post-office of Paris (62½ miles English nearly), is supplied by the markets of Poissy and Sceaux, for the general qualities of butchers' meat; two markets for fat cows are held near Paris, at the ancient convent of the Bernardines, and at La Chapelle St. Denis; a market for calves is held also in the interior of Paris. Pig markets are held at Gentilly, La Chapelle, Montmorency, Arpajon, and St. Germain. These markets are held as follows:—Poissy, which is 27 kilomètres from Paris, on the Rouen Railway, every Thursday; Sceaux, which has also a railway, and is 11 kilomètres from Paris, every Monday. The cow markets are held every Tuesday and Friday. The calf market is held also on Tuesdays and Fridays. The pig markets are held at Gentilly on Tuesdays and Thursdays; at La Chapelle on the Thursdays; at Montmorency on Wednesdays; at Arpajon on Fridays; at St. Germain on Mondays.

Of these markets, those of Poissy and of Sceaux are the most important, our attention will therefore be principally confined to them.

The market of Poissy was built and enlarged under the direction and at the expense of the municipality of that town. It is situated in the valley of the Lower Seine, as was before observed, nearly 17 miles from Paris, with good pasture land, and watering places for the cattle arriving, or staying over the market. The plan is regular, and well adapted for the execution of the necessary measures for the security of public health. The surface at present occupied is 32,500 metres superficial, or rather more than 8 acres English. The town intend, however, to augment it, so as to give a surface of 34,500 metres, or 8½ acres. At present it can contain about 2,400 cattle, 14,000 sheep, and 1,000 calves: the projected enlargement will carry the number of cattle to 3,000. The expense up to the present day has been 1,350,000*f.*, without calculating the interest: the extension is estimated at 430,000*f.*, making a total of 1,800,000*f.*, or 72,000*l.* sterling. The average gross revenue from this outlay is 120,000*f.* per annum, which goes to defray the municipal expenses.

The dimensions given above are found to be sufficient for the frequentation of the market; for during the first three months of 1849, the average number of cattle sold was 1,540 bullocks, 115 cows, 628 calves, and 6,250 sheep. Probably the number of cattle not sold was one-sixteenth of those sold. The tolls levied are 75*c.* per head of cattle, 25*c.* per calf, and 10*c.* per sheep, sold.

The preparations for the cattle are made by means of stout granite posts, into which wrought-iron bars are let, so as to form divisions 38 m. long by 4 m. wide (124 ft. 7 in. by 13 ft. 2 in. nearly). The posts are 1 ft. diameter above ground; top rail, 1½ in. diameter, bottom rail ¾ in. diameter; the top rail being 1 ft. 10 in. from the ground; the posts are 8 ft. 2 in. apart from centre to centre, except in the middle, where a passage is reserved for the buyers. The calves are exposed for sale upon a raised platform, entirely covered; the custom prevalent throughout France being to tie all four legs, and expose the unfortunate creatures for sale in that constrained position. The temporary pens for the sheep are made by means of wood hurdles let into wrought-iron posts, bedded on an asphalt platform, laid with a good transverse fall to throw off the rain, or other waters.

The great defect of the market is, that there are no means of watering the cattle but by

taking them to the river. Works are, however, in progress to establish two large troughs (of the whole width of the market), slightly raised above the paved surface. The graziers criticize this arrangement, for they contend that cattle require to have their feet in the water whilst drinking; and that a watering place, with a sloped floor, would have been far preferable.

Cattle arriving at Poissy are either turned out to graze in the meadows by the side of the river, or they are lodged in the stables, or layers, belonging to the inhabitants of the town, previously to sale. The proprietors, or drivers, are bound, upon presenting the animals, to make a declaration to the clerk of the market, of the nature and provenance of the animals they expose. The animals are examined by a veterinary surgeon before being placed, and he is empowered to refuse such as are not in a fit state to be killed. The market begins, between 1st April and 1st September, from six o'clock in the morning till twelve for calves; from October to April, the market begins at seven. Throughout the year, a cattle market is held from eight to three; the sheep market from one to four. All cattle must be cleared away before four o'clock. A sale anywhere but upon the market, and between the legal hours, exposes to a fine of 100*f.*, and the resiliation of the bargain. Cattle sold are conducted at once into a series of sheds, six in number; one of which is especially devoted to the animals destined to each of the separate abattoirs of Paris; and the sixth to the animals destined to the different towns of the Banlieu. They are driven on foot to Paris by drovers, under the immediate control of the prefect of police. These drovers are six for the bullocks, two for the cows, and two for the sheep: they are responsible for all the accidents which may arise during the transit of the animals from the markets of Sceaux or of Poissy, whether arising from the neglect of their *employés*, or from strangers. For this service they are paid 75*c.* per head of cattle; 2*f.* per bull; 10*c.* per sheep; and on the average 1*f.* 20*c.* per calf. The cattle are collected in droves of not more than forty each; the bulls are, by order of the police, obliged to be led at the tail of a cart, and well attached thereto; the calves are carried in carts, one on the top of the other, with their legs tied as before mentioned; the sheep are driven in flocks of about 150 each.

The market of Sceaux is smaller, less frequented, and not so well constructed as that of Poissy. It is indeed too small for the number of cattle exposed, and therefore it gives rise occasionally to scenes of cruelty worthy of Smithfield. The municipality of Sceaux either was not able to raise the money necessary to construct the market, or they had not the courage to undertake the works; for they let the construction upon lease of nineteen years' duration to a contractor. Until the expiration of his term, therefore, no great amelioration can be expected. The surface of the market is 29,230 metres superficial; it would afford accommodation for 1,242 cattle and cows, 10,000 sheep, and 1,000 calves; the full average number exposed for sale is 1,400 cattle, 400 calves, and 9,000 sheep. Moreover, this number is likely to increase; for the central, and the Tours and Nantes Railways, are opening up fresh sources of supply. All the details of the working of the market are the same as at Poissy, with a slight variation in the hours. The cattle purchased at Poissy are obliged to be led into Paris, by the barrier "de Roule;" those purchased at Sceaux, by the barrier "d'Enfer."

In the year 1846, the last of which I have any authentic information, the number of cattle consumed in Paris from all the different cattle markets was as follows:—Bullocks, 80,272, of a mean value in the market (standing) of 352*f.* each; they were divided into three classes, as to value, weighing respectively 408 kilog. 3*g.*, 362 kilog. 1*g.*, and 264 kilog. 3*g.* each, or on the average, 345 kilog. 1*g.* Cows, 22,023, value 188*f.*, weighing as before 309 kilog. 1*g.*, 245 kilog. 2*g.*, 205 kilog. 6*g.*, and on average, 244 kilog. 1*g.* each. Calves, 84,216, value 81*f.* 84*c.*, weighing 73 kilog. 1*g.*, 63 kilog. 1*g.*, 53 kilog. 1*g.*, and on average 63 kilog. 1*g.* each. Sheep, 487,537, value 22*f.* 68*c.*, weighing 23 kilog. 3*g.*, 20 kilog. 2*g.*, 17 kilog. 1*g.*, and on average 20 kilog. each,

The ancient province of the Anjou furnishes the greatest number of cattle; next in importance are the departments of Calvados and the Orne. The bulk of the sheep are supplied by the department of the Seine Inférieure, but many arrive from the German States on the eastern frontier. The cattle, which are sent from the Anjou, are generally made to work from six to eight years, they are then fattened for two years on dry fodder. Those from the Calvados never work; they are grass fed, and sent to market from three to four years of age; they are by far the largest and finest race, and yield the most meat.

The cattle are led to market from the northwest by drovers, who travel from 15 to 18 miles per day, and who are paid at the rate of 2*f.* to 3*f.* per day, with an allowance of 10*f.* per day, for the feeding of the cattle. From the provinces to the south of Paris, the drovers are paid about the same, but they travel from 25 to 28 miles per day. The German sheep arrive in droves of from 120 to 150, travelling 8 to 10 miles per day; the drovers receive 20*f.* for the journey, and are fed upon the road. The French drovers conduct from 200 to 300 sheep, from 25 to 30 miles per day, and are paid 30*f.* per month, and fed upon the road. The calves are collected at the doors of the farm-houses, and carried to market at the rate of from 1*f.* 20*c.* to 1*f.* 50*c.*, for a distance of 18 to 20 miles. It has been calculated that the larger portion of the cows do not travel on the average more than 15 miles; the bulk of the calves are furnished by the country within 75 miles from Paris; the sheep, within 125 miles from Paris, form one half the supply, the next quarter travel about 170 to 180 miles; the cattle are furnished to the extent of three-quarters of the whole number, by a zone extending from 120 to 180 miles from Paris: the rest have to travel distances of 250 to 380 miles.

The consumption of pork is upon the increase in Paris. For the ten years ending 1837 the consumption from all the different markets was 91,126 pigs, weighing on the average 75 kilog. each, of the value of 90*f.* In the year 1846 the number was 93,501, the average weight and value being the same. The regulations of the pig-markets are substantially the same as those of the cattle-markets; but the town of Paris not possessing at present any abattoirs for these animals, they are slaughtered in private establishments.

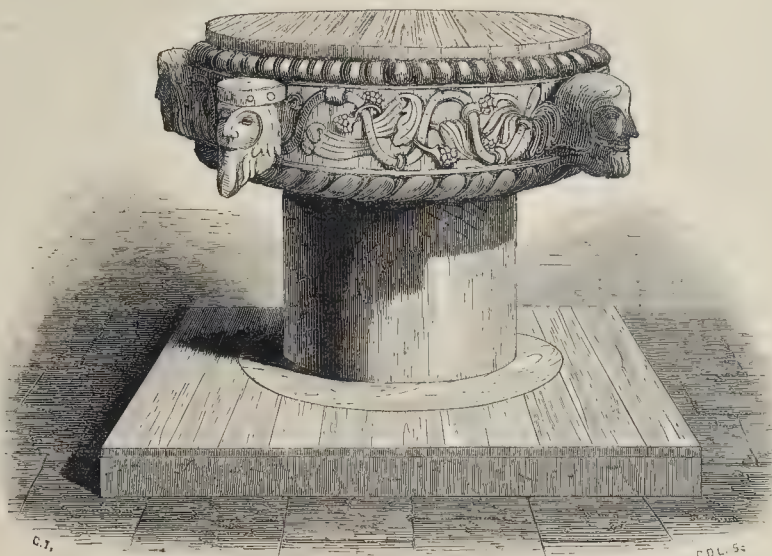
It is rather remarkable that, in spite of the progress of agriculture, the average weight of the cattle sold at the principal markets of France has progressively declined since the revolution of 1814. M. Millot gives, at least, the average weights since 1811 as follows:—before 1811 the cattle at Poissy weighed 350 kilog.; between 1820 and 1826 they weighed 330 kilog.; between 1837 and 1841, 327 kilog. The average has increased since then, for at the present day it is nearly equal to that of the first period. But at Sceaux it is still on the decline, for it is barely more than 312 kilog. In fact, the grangers of the southern and western provinces do not appear to have kept pace with those of the northern. The average consumption of butchers' meat per individual has also declined in a notable manner in Paris and throughout France. In 1789 it was 74 kilog. 30*g.* per annum per individual; in 1826, 53 kilog. 45*g.*; in 1839, 47 kilog. 48*g.*; which average in Paris rose to 53 kilog. 75*g.*, and throughout the department of the Seine to 55 kilog. 62*g.* Le Comte Darn arrived at an average rather lower, for he made it only 47 kilog. 87*g.* for Paris, whilst he gives the average for London at 88 kilog., and for Brussels at 58 kilog. But these calculations are to be taken only as means of arriving at very incorrect comparisons of prosperity, for, as M. Thouret remarked, it is highly probable that a lower general average might accompany a more equal distribution. Thus, if 500,000 people consumed 100 kilog. each, and 100,000 consumed 10 kilog., the average would be 85 kilog.; whereas, if 600,000 consumed 100 kilog., and 400,000 consumed 30 kilog., the average would be but 72 kilog. Like all statistical results, the above tables, therefore, must be regarded as mere approximations; never as containing the real proportions of the consumption.\*

G. R. B.

\* To be continued.



FONT, CHERRING CHURCH, BELGIUM.



FONT, CHERRING CHURCH, BELGIUM.

THE accompanying sketch of a curious font is from a village church on the high road to Tournay; the foliage around it, of Norman character, is in low relief. The heads of knights would lead me to think it an offering of some returned from perilous adventures. I could get no information on the subject.—J. L.

## THE AIR-SYPHON.

THE notice which you took of Dr. Chowne's "Patent Air-Syphon System of Ventilation" has led many persons to inquire into it, and induces me to offer a few remarks upon its apparent paradoxicality. Both our present practice and theory would tend to prove the fallacy of Dr. Chowne's assertion, "that air circulates up the longer leg, and enters and moves down the shorter leg; and that this action is not prevented by making the shorter leg hot whilst the longer leg is cold."

The motion of air is produced (naturally) by a change of density, caused thermometrically, or hygrometrically,—or from the general principle by which the motion of a fluid is communicated to the lateral parts which are at rest. This communication of motion occurs in ordinary chimneys by the influence of air upon air, whenever the atmosphere is in motion, and impinging on the top of the chimney, either at a right angle or any greater angle. The effect, in Dr. Chowne's experiments, is produced by either one or other of these causes. In that which you describe as having been performed in his garden, the long leg ran over the top of the house, and, consequently, was exposed to a free current of air, from which the shorter leg in the garden was sheltered. In this case, the air moving over the top of the longer leg would communicate a motion to the air within it, which would far overpower the counteracting effect produced by the rarefaction of the shorter by the hot water: the effect might instantly be reversed by creating a stronger current over the mouth of the shorter leg. In connecting the various tubes from the room to his chimney, the effect is produced from the same cause, probably assisted by the rarefaction of the shaft by warm flues in the same stack.

If Dr. Chowne's theory be correct, how useless is Dr. Reid's enormous fire at the bottom of the longer leg of his syphon at the House of Commons (the shaft being 110 feet high), and how many hundred tons of fuel are annually

wasted! Were Dr. Chowne's theory correct, how easy would it be to connect a descending stove, by a horizontal flue of unlimited length, to the chimney, or longer leg of the syphon, and always insure an upward current; yet every practical man knows that a great degree of rarefaction is required in the longer leg, or chimney, before the light gases generated in the stove can be made to descend and overcome the friction in the horizontal flue.

Neither is Dr. Chowne's application of the syphon new,—for in Tredgold's work "On Warming and Ventilation," p. 239, published in 1824, the inverted syphon is suggested, and recommended for the ventilation of rooms, although its action is there ascribed to very different causes than those laid down in the Doctor's specification. WM. JEAKES.

## RAILWAY JOTTINGS.

THE Christmas movement of holiday-keepers has made, it seems, an extraordinary amount of traffic by rail this season. Even the Euston-station, it would almost appear, was scarcely large enough for the additional crowds and packages collected; at least a large temporary tent, 60 feet wide by 20 feet high, with half-a-dozen fires, and lit with gas purposely laid on, had to be there provided on the arrival side, and fifty to sixty porters were engaged day and night from Saturday to Tuesday morning in hauling hampers out of the way of arrival. Thirty to forty vans, &c., were constantly at work in the delivery of all sorts of provender and good cheer, piled in packages reaching often up to second-floor windows, where the less scrupulous and more needy might have readily helped themselves. The departure side was equally full of bustle and holiday business.—How the Great Midland artery has served its office in the circulation of so rich a flow of the social *pabulum vite* it is hard to say; for those essential capillary conductors of it to the body politic, the porters, have refused to do their office, on the ground of a deficiency in their own particular supply of the needful. They have been twice drained within the year, to the extent of 1s. a week each time, off 18s., and they think it hard that the directorial mismanagement and plunder should be repaid out of their pockets, which no one alleges have ever been either heavily or dishonestly filled,—a circumstance fully borne out by the fact that the porters of even a comparatively small and private company, such as

Pickford's, have 20s. each per week, without a grumble. The obstruction of such a main way of the nation as the Midland, is itself a national question, however paltry and pitiful its basis. And over and above the inconvenience, confusion, loss, and danger,—when we look to the corruptibility of all animal tissue, whether flesh, fowl, or fish, and the loads of it accumulated in the Midland stations, the state of these stations at the present moment comes to be even a sanitary question of some little national importance to the public crowds frequenting them.—The masons, labourers, and others employed on the Sheffield station, &c., of the Manchester and Lincoln have been almost all paid off by the contractors, Messrs. Miller, Blackie, and Shortridge; the railway company, it is said, want funds. The Grimsby dock works, connected with the same line, have also been suspended.—It is proposed to make the railway arches at Manchester available as slaughter-houses.—Some leading capitalists, it is said, mean to offer to relieve the railway companies of all responsibility in the working of their lines, guaranteeing a certain per centage clear of all expense or risk.—Mr. John Wheatcroft, C.E., one of the contractors for the High Tor tunnels at Matlock Bath, has taken the contract for the cuttings and tunnel of an extension line from Crooklands to Lindal-lane, on the border of Lancashire.—A public entertainment has been given at Lowestoft to Mr. Peto, and it is proposed to call the new part of the town which has arisen in connection with the railway, harbour, and esplanade, by the name of Petoville.—A murder was lately committed in a French railway carriage. Such a crime could not occur during railway transit were the guards to have a regular beat as watchmen along the train, either outside or in; whereas, the helpless position of passengers, and, above all, of guards, at present, not only affords facilities, but actual temptations to crime. Such was the case in the late mail robberies on the Great Western.

LONDON IN 1543.—Whitlock and Hyde have just published a large view of London, Westminster, and Southwark, as they appeared in 1543, from a drawing by Anthony Van Den Wyngerde, in the Sutherland collection at the Bodleian Library, Oxford. The monastery at Bermondsey is added, from a drawing in the collection of the late Mr. Upcot. The whole was copied and engraved by Mr. N. Whitlock, and makes a very interesting work.



## WINDOWS FROM ROME.



FIG. 1.

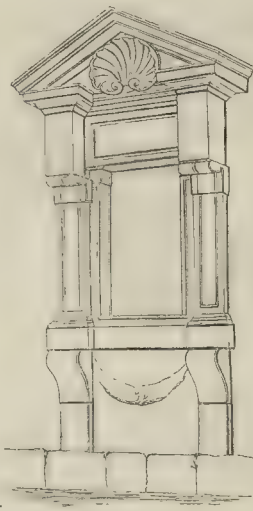


FIG. 2.

## SUGGESTIONS FOR STREET ARCHITECTURE.

THE windows represented above, from sketches by Mr. Lewis, are both in Rome. Fig. 1 in the *Via del Clementino*, and fig. 2 near the *Porta Pia*.

## A WORD IN DEFENCE OF LINEAR PERSPECTIVE AS AT PRESENT TAUGHT AND PRACTISED.

THE title of this paper will doubtless sound strangely in the ears of many who, knowing on what foundation it reposes, would, in the present state of science, as soon expect a defence of the Copernican system of the universe, as a vindication of the present fully developed system of perspective. But doubts, it appears, have arisen, and have found utterance in the pages of the *Art-Journal*, and in a manner which is calculated to unsettle the minds of those who merely have recourse to rules, and are but ill-grounded in those geometrical principles on which they are based, and which entitle linear perspective to take its place among the exact sciences.

The system of perspective, as at present practised, I need scarcely say, is of modern invention. Of the ancient notions on the subject we know nothing, though several Greek writers wrote upon it, for their works have not come down to us. We may gather, however, from paintings exhumed at Pompeii, that it was but little understood by the Romans.

For this system it is well known we are mainly, if not entirely, indebted to Dr. Brook Taylor, who may be considered, with the exception of some improvements and subsequent inventions to facilitate practice, and some additions to inverse perspective, by Hamilton, Noble, the two Maltons, and others, to have framed the entire system, as we have it at the present day. Vanishing points were known before his time: Guidus Ubaldus, a hundred years before, had discovered most of the leading principles of perspective, but stopped short of applying them to the varied positions of planes; Brook Taylor produced a theory that would embrace not only vanishing points, but the vanishing lines of planes in every position. He did not limit his rules to the horizontal plane, but provided for the representation of every species of planes and lines, whether horizontal, vertical, or oblique; and thus made his principles of universal application, and adapted for every purpose. He did not consider the horizontal plane as differing from the

other planes; he considered them all alike. It is the position of these planes with respect to each other that is important, and this he made one of the new features of his system.

The subject we are upon has engaged the attention of some of the most able geometers of this and other countries, amongst whom we find Ozanam, s'Gravesande, Pozzo, Marolois, Fergusson, Emerson, Muller, Dr. Priestley, and many others eminent in science: several have written able treatises on the subject, and among these, Peter Nicholson, the indefatigable "practical builder," may be mentioned. He has stated and expounded it, and showed its geometrical origin and relations, in a concise and explicit manner, in his "New and Improved Practical Builder," and in his "Architectural Dictionary;" and perhaps as complete a view of perspective and projection appears in the latter work as could well be found.

My object in this essay is to state and elucidate the facts that have been overlooked by those who have fallen into the error referred to; to point out the true nature of the science, and the conditions on which a truthful result is obtained from it; thereby to allay, if possible, the doubts which have arisen in the minds of persons imperfectly acquainted with the subject. Those doubts and difficulties having once arisen in my own mind, I can, perhaps, the more readily furnish a key to their solution in the minds of others.

It is complained that the results of linear perspective, or the representation of objects, by its rules, on the picture, do not coincide with the results of vision; that outlines of architectural objects which have been sketched by the hand and eye alone, differ from their scenographic or perspective representation; and that, on the other hand, a representation of a building, made by an application of the theorems on which perspective is founded, compared by the eye with the original structure, will have its extremes apparently more expanded than those of the latter, exactly in proportion as the outline extends from its centre, or point of sight. It is concluded that because this is the case, the system is false. Now, it is a discrepancy between the actual drawing, and the appearance of its original to the eye, that is here meant; and the existence of this discrepancy I at once acknowledge, but at the same time maintain that it *should* exist, and will show, by-and-by, that if there were no such discrepancy, the picture would convey to the eye a false image of its original.

Every person that understands the principles of perspective knew of this discrepancy,—knew also whence it arose,—that it was an inevitable consequence of the form of the perspective medium or picture, and necessary to ultimate truth. So far from the existence of this discrepancy being a new discovery, the objection founded on it has been anticipated in more than one treatise on perspective. In the "Cabinet-maker's Drawing-book," a work published nearly half a century ago, the writer says, "it will be proper to observe that, notwithstanding the general agreement between optical laws and the rules of perspective, yet in one respect there is a difference, for the perspective representation of any object on a plane is not the same exactly with the appearance of that object to the eye. \* \* \* This difference, however, decreases the farther the object is removed from the eye, for then the rays do not cut the picture so obliquely; consequently, the representation of the original object on the plane of the picture is more natural, because it has more of the appearance of that original object to the eye." Here, though, from what he afterwards says, he evidently does not know how this disagreement is reconciled with ultimate truth of visual sensation, yet he does not conclude that the system is false. Of its entire truth he does not breathe a doubt. He perceives the disagreement to be the unavoidable result of the form of the perspective medium, and elsewhere says, "This art, being founded on geometry and optics, may be improved in its practice, but its fundamental principles can never be altered, any more than the nature of vision itself." And though Brook Taylor was perhaps not at first aware of it, to Malton, who took all his principles from him, it was well known; yet he nevertheless declares perspective to be at its *ne plus ultra*, and satisfactorily accounts for the origin of what, even then, had given rise to some cavilling.

The science of perspective is not founded, as has been asserted, on the supposition that the common planes, horizontal, vertical, and inclined, with which we are surrounded, are all perfectly flat in appearance, and that, consequently, all divisions, intersections, and terminations bounded by right lines, are usually straight lines. Perspective has nothing to do, so far as constructing the picture is concerned, with the laws of appearances, but is founded upon the following theorems:—1. "The indefinite projection of a straight line, not parallel to the picture, passes through its intersecting and vanishing points." This is capable of a geometrical demonstration, which I need not occupy time and space to give. 2. "The projection of any plane figure, parallel to the picture, is similar to its original," for the visual rays that issue from the original to the eye form a pyramid, of which the picture is a section parallel to the base; but a section of a pyramid, parallel to its base, is similar to the base; therefore, the representation of any plane figure, parallel to the picture, is similar to the original. This is the basis of parallel perspective, to which my remarks will be more particularly confined.

Now, it should be borne in mind, that it is the projection in the picture of a right line or plane figure, not its appearance to the eye, that is here spoken of. The design of perspective is to represent objects on a definite surface (I am quoting a received definition of it), not as they immediately appear to the eye, but so as to affect the eye, when seen from a certain position, in the same manner as the object itself would when the eye is fixed on the point of view. It is, in fine, the art of projection on a plane, and the question for us to ask is, not how objects really appear to the eye, but whether perspective so represents them on this plane that the final result, viz., the impression imparted to the sense of vision by the picture, will be correct.

But before going further, it must be granted that rays of light from every point of visible objects travel to the eye in straight lines; and that all objects being viewed under an angle decreasing in proportion as they recede from the eye, decrease in apparent size. And it must be remembered that, to meet the various positions and forms of these objects have arisen most of those imaginary planes, horizontal, vertical, or inclined, which are treated of and used in perspective, and which engender



vanishing lines and points, by means of which the true place, on the picture, of any possible original point, may be found, and, by consequence, any line or superficies also.

Perspective has not committed the error, as has been asserted, of supposing that its laws, as a science, should only commence with the picture; and all who understand the art know well that any line represented in a picture is only a portion of a more extended line; that perspective makes the tour of creation, takes cognizance of all lines, planes, and solids, however extended, and can truly represent any.

With respect to the great celestial circles, the eye being situated in their plane, whether they be horizontal, vertical, or oblique, and equally distant from every point of their circumference, their visual representation must be by straight lines; but lines parallel to the horizon, and infinitely extended, vanish into it in points 180 degrees asunder; and this vanishing is common to the parallels of the other great circles, both perpendicular and inclined; and the eye not being situated in the planes of these parallels, they are visually curved. But any reasoning upon the laws of appearances, with respect to the circles of the heavens, whether greater or lesser, will be but little illustrative of the nature of perspective; and no result of such reasoning could affect its truth. Perspective has regard only (so far as producing the picture is concerned) to the laws of projection, and its province is the projection of lines, planes, and solids, on a flat surface; and whatever may be the deviation of the picture from the true natural appearance, all is made right, as regards the final issue, by the operation of those very laws, in viewing the picture, which are said to be broken; and a true image is, in the end, delineated on the retina of the eye.

For, let us suppose the front of a building some three or four hundred feet in length, and sixty or seventy in height, on level ground, crowned by a cornice perfectly horizontal, and entirely unbroken from end to end; this cornice will be its sky line, or terminal member to the eye. Let it be required to make a drawing of this front, by the rules of parallel perspective, supposing the spectator placed opposite its centre, and at such distance as to view the whole under an angle of about sixty degrees. The terminal member, or cornice, in this drawing will be a straight line, and parallel to the horizon. Now, we need not that one should come from the grave to tell us that this is not the true appearance of this cornice to the eye. It is not its visual representation, but it is its true scenographic or perspective representation on the plane of the picture. The cornice of the original building does not appear to the eye as a straight line (it could only so appear in the case of a crescent, with the eye placed in the centre of the arc). But, let this picture be hung up on a wall, and let a spectator place his eye opposite its centre, at the proper point of view, and he will, from it, have depicted on the retina of his eye (making due allowance of course for the imperfection of all manual operations) a true representation of the original building; for this representation of it has, if I may so speak, put itself in perspective to the eye: being seen under precisely the same condition as the original, it is evident it would present a distorted view to the eye, if its lines had undergone any change in their perspective representation. Now, as, in the original, the extremities of the building appear lower than the centre, so do they also in the picture, by an operation of the self-same optic law, that primary law by which objects decrease in size in proportion to their distance from the eye; and, to use perspective parlance, the pyramid of visual rays from the original to the eye, and that from the representation, are *similar*, and the apparent height of the extremities of the building, both in nature and in the picture, are to the height of the centre inversely as their distances from the eye. The line, therefore, of the cornice, though drawn straight upon the picture, appears curved, just as it does in nature. Under exactly the same circumstances as the original, it must obey the same laws; and if the plane of the picture extended infinitely on either hand, these lines, produced on it, would vanish in the horizon. A tightened cord placed between the eye and the cornice of this building, in the same plane with it, can prove nothing

to the contrary, for, being in precisely the same position with respect to the eye as the cornice, it will become visually a curve, and decline too.

The same principle of illustration as that used above, will apply to any view parallel to the picture, whether it be the interior of a cathedral, or an exterior colonnade. In viewing the latter, it is evident that the columns will decrease in apparent height and diameter as they recede from the eye; but they must not be so represented in a picture, for the reasons before given; their due diminution is provided for by the laws of our sight operating whilst the picture is viewed, provided the spectator place himself at a proper point of distance and position. Now, there is a point of sight for every picture, and only one point, and every picture must be viewed from that point. It may be a historical subject, and consist of a group of figures, or of one figure, no matter which: that group, or that single figure, will have a distorted appearance, and a false impression of it will be conveyed to the sense of sight, unless viewed from the proper point. Even for a portrait there is but one point: the spectator must place himself in the same position with respect to the picture, as the artist occupied with respect to the person while painting him. It must be observed that the point of view from which a picture is taken should, in the first place, be at a proper distance; in other words, the view should be limited to somewhere about sixty deg. This is required not by a law of perspective, indicating any deficiency in the science or system adopted, but by the limit of vision, a law of nature herself, which does not permit us conveniently to see a much larger extent.

With regard to the vertical lines of a building or other object, it is evident that as the horizontal lines above the eye decline visually towards points on the horizon, so these, if not in the centre of the picture, must apparently incline towards the zenith, and are similarly curved; but for the reasons before adduced in reference to the horizontal lines, they must not be so drawn in the picture.

So far, therefore, from a drawing, by the hand and eye, being a true test of perspective, it must be understood that such representations cannot, viewed from whatever point, correctly convey an image of its original. This mode of representation, applied to edifices occupying a large portion of the picture, or seen under a large angle, would be sensibly erroneous; though in objects on a smaller scale, as in the case of landscape sketches, it may be sufficiently correct. When a building is to be represented on a scale of any magnitude, the rules of perspective must be called in, for it could not be correctly done by the hand and eye. By the latter method its true appearance would be delineated on the picture, but that representation, the operation of the law of optics would distort to the eye, and a false impression would be conveyed. The representation of objects by the hand and eye is not their projection on a plane, such as the picture, but on a sphere; and it is the projection on a sphere that can alone agree with true appearance or optical representation. A true projection may be made of an original object upon a surface of any species,—a surface curved to any of the conic sections; but the projection in perspective is on a plane, and it must of necessity differ from the projection on a sphere. Let lines be imagined or drawn representing these two media of projection. The line representing the plane of the picture will be a tangent to the arc which represents the segment of the sphere. Let the eye be supposed in its proper place, that is to say, in the centre of the latter; now, the difference between the projection of any object on the plane of the picture, and its visual appearance, is as the difference between that portion of the tangent intercepted by the radii forming the angle under which the object is seen, and the subtense of that angle or chord of its arc. It is obvious that the difference increases as the object recedes from the point of contact of the two surfaces of projection; but it is also obvious that the subtense or chord, and that portion of the tangent, must visually coincide to the eye, placed as supposed, which is its true position. The picture, in short, can be considered only as instrumental to the ultimate end of, by an artificial process, conveying to

the eye the true appearance of objects in nature. Perspective has only to do with the production of the picture, which is a projection of these objects, and its laws are so framed, that the picture drawn by them, and viewed at the proper point of distance, will unfailingly answer this end. Perspective has nothing to do with these objects, but to give a true projection of them on this plane; and this projection or representation, when viewed aright, yields to the eye a true representation of its original in nature.

I cordially agree with the objector, that, to obtain a true delineation of nature, is a point of the highest importance: "our sight," to quote a great English essayist, "is the most perfect and most delightful of all our senses; it fills the mind with the largest variety of ideas, converses with its objects at the greatest distance, and continues the longest in action without being tired or satiated with its proper enjoyments." And it is proportionably important that the result, upon the mind, of its activity, should be characterized by truth, whether it be occupied by visible objects, or by their representation in pictorial art: particularly that its laws be understood as far as they are required in the latter,—that art that can administer to more refined delight than even nature herself,—which furnishes the mind with some of its loftiest ideas, and contributes to the highest pleasures of the imagination. This point I cordially concede, but must maintain, nevertheless, that nature can be truly represented, and is truly represented, by the system of perspective as at present practised; and that it could be truly represented by no other system, without changing the perspective medium, an alternative which I think none will gravely propose.

I admit that few practical sciences are more imperfectly understood. We see in many engraved illustrations of architecture, and in paintings too, not only by old masters, but also by those of the present day, though well managed with respect to the higher qualities of art,—for want of this knowledge, so ill drawn as to seem almost burlesques on their originals. By many otherwise clever artists now living, perspective is evidently but little understood; and by some of the old masters it was, probably, not understood at all. But are there not illustrations of architecture, by artists of the day, so drawn as to bear the impress of truth in this respect, as well as in every other? Is there any defect of the kind observable, for instance, in the landscapes of Turner, or in the Egyptian views and continental cathedrals of Roberts?

It is, in short, from an imperfect knowledge of it, from ignorance of its true nature, that the doubts and difficulties complained of arise. I believe that no man that thoroughly understood perspective ever expressed the opinion that it was not true. I believe also, that, by using it aright, the ultimatum is obtained, that it is entirely true, and requires no innovation or revision; and that, based on propositions which admit of mathematical demonstration, it can only be found false when the geometry of the Greeks is exploded.

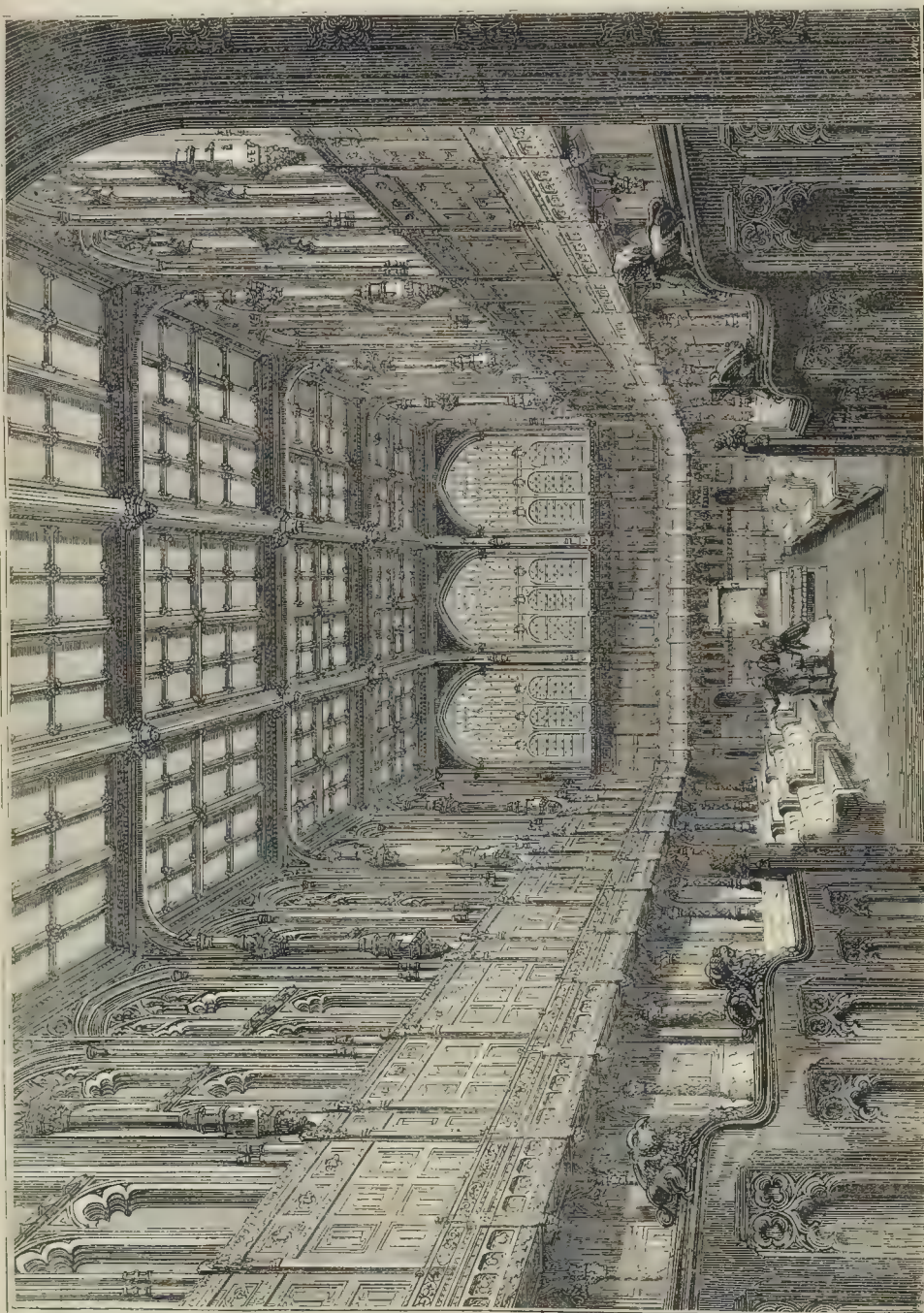
S. HUGGINS.

#### GRATUITOUS SERVICES OF ARCHITECTS.

—There has been much written of late on the subject of the architect's commission. I would now wish to call attention to another subject, which is almost as bad as an architect offering to execute works for 3 per cent., I allude to a professional man agreeing to furnish designs, specification, estimates, and superintendence, gratuitously, with the prospect or promise of such an offer leading to future business or commissions. This course is unjust in every sense of the word. It is unjust to those in the profession, and it is an act of injustice towards the party from whom such an offer is extracted. If a building is to be erected either for a charitable purpose, or otherwise, let me ask can the builder afford, or could it be expected that he could afford, to erect the building free of cost? Is it expected that the solicitor should draw up the agreements, &c., free of expense? Can the doctor afford to administer his advice or his medicines gratuitously? Can the clergyman afford his services gratuitously, or the tradesman his goods, &c.?

A. S.





THE NEW HOUSE OF COMMONS, WESTMINSTER.—MR. PARRY, R.A., ARCHITECT.



## THE NEW HOUSE OF COMMONS.

We reported a few weeks ago the rapid approach of the House of Commons, in Mr. Barry's new Palace of Parliament, towards completion, and have now the pleasure of placing before our readers the first engraved view of it. The drawing is made looking towards the north, or speaker's end, with the "bar" of the House in the foreground. The ceiling is divided into eighteen compartments by moulded ribs, each space being again subdivided into panels. Over the speaker's chair is the reporters' gallery, formed like the other fittings throughout, of oak, and left of its natural colour. There is a metal railing above the front of the gallery. The traceried openings seen above the speaker's chair will be filled in with open metal-work, to screen a gallery to which ladies will be admitted. At the bar end is a much larger gallery for strangers. The floor of the House is of iron, perforated for the purpose of ventilation. The windows will be filled with stained glass; but there are no coloured decorations.

The length of the chamber is 62 feet, the width 45 feet, and the height 45 feet: nearly one-third less in length, therefore, than the House of Lords, which has the same width and height, and is a double cube.

The Commons' lobby, south of the bar, has a similarly-formed ceiling, in nine main divisions.

The connection of the Houses of Parliament with Westminster Hall, by means of an enormous archway nearly the whole height of the hall, is formed, although the steps are not yet constructed, and justifies our anticipations of its fine effect. This communicates with St. Stephen's Gallery, the stonework of which is being cleaned down. The groin vaulted roof of this gallery is a fine piece of work.\* The restoration of the Cloisters is being proceeded with: the beauty of the old work there is marvellous. From 300 to 400 men, in the whole, are at present engaged on the building.

## COVENT GARDEN CHURCHYARD.

THOUGH only a journeyman mason, I am a constant reader of your valuable periodical; and I may say, with many of my class, that I have been instructed, benefited, and encouraged by your remarks on the present condition, and suggestion for the improvement of the dwellings of the poor, which show us we are not entirely neglected and forgotten by our superiors, and that "better days are coming." The desecration of human remains from Covent Garden Churchyard, exposed in your publication of last week, and my having relations buried in that ground, caused me to make inquiry, and I find the facts were worse than your correspondent represented them. Surely such a public outrage on the feelings of humanity will cause inquiry to be made, as to the authors of such a scandal in the heart of the metropolis of the world. Will you be so kind, Sir, as to ease the feelings of a poor working man, by informing him whether there is any protection afforded for the remains of those buried in consecrated ground? or whether we are to reflect that, in after ages, our remains may be taken from where laid, and scattered about the streets, to make room for a brick grave, when required.

JOSEPH RUTHERFORD.

\*. We are able to state that the General Board of Health have directed Dr. Gavin Milroy to inquire officially into the circumstance mentioned by our correspondent.

**PAINT FOR IRONWORK.**—In reply to the inquiry of a correspondent, who asks what is the best covering to preserve wood and ironwork composing a suspension bridge, I beg to say that I have used with success two coats of red lead (minium or deutoxide of lead). A short time since, being on board a foreign steamer, I cut from the surface of the paddle-wheel the red paint, and found the ironwork bright and in no part injured by rust, excepting where the paint had been accidentally chipped off.

A. B.

\* St. Stephen's Gallery has eight large compartments beneath the windows for frescoes.

## ON THE MANUFACTURE OF GLASS, AND ITS APPLICATION TO ARCHITECTURAL PURPOSES.\*

THE glass of commerce—that beautiful manufacture to which the generic name is most commonly applied—is always composed of some siliceous earth, the fusion and vitrification of which has been occasioned by the action of intense heat, when the silex is combined with certain alkaline earths, or salts, and sometimes with the aid of metallic oxides. In fact the article becomes a silicate, and may be termed a silicate of potash and soda, a silicate of alumina, a silicate of lime, &c., according as one or other of such substances predominates in combination with the silica. There are four different and distinct qualities of glass manufactured for domestic purposes, viz.:—1. Flint glass, or crystal; 2. Crown and German sheet glass; 3. Bottle or common green glass; and 4. Plate glass. The materials and processes used in making these form the subject of our present inquiry.

Each of the four descriptions contains two ingredients, which, indeed, are essential to their formation, silex, and an alkali. The variations of quality, and distinctive differences observable in glass, principally result from the kind of alkali employed, and its degree of purity, as well as from the addition of other accessory materials; such as nitre, oxide of lead or of manganese, white oxide of arsenic, borax, or chalk.

The following may be considered as the average proportions for the several materials employed in the various kinds of glass:—

Flint Glass, or Crystal.		
Sand .....	50	58
Potash .....	33	19
Litharge .....	33	17
Nitre .....	17	6
	100	100

Crown or Sheet Glass.		
Sand .....		38.5
Carbonate of lime .....		14.5
Carbonate of soda, 40 per cent. pure; or } Sulphate of soda, 95 per cent. pure. ....		18.0
Cullet .....		29.0
	100	100

If sulphate of soda be used, add charcoal 10lbs.

Bottle or Common Green Glass.		
Sand .....	57	53.5
Lime .....	22	
Brickdust .....	14	13.5
Refuse of alkali works, or lixivium of soda .....		33
Silt .....	7	
	100	100

Black oxide of manganese has been long used for clearing glass from any foul colour, which it might accidentally possess through the impurity of the alkali employed, and in particular from that green tinge which marks the presence of iron. This property of manganese, when in the form of an oxide, occasioned it to be anciently known as glass soap, a name which very accurately describes it use.

These materials having been properly melted, the following is the process followed for making the crown glass:—

The implements used by the glass-blower are few in number, and exceedingly inartificial in their form and construction. The principal one is a hollow iron rod or tube called the pipe, which is about 6 feet 6 long, and 1 in diameter in the centre. At one end it has a handle about 12 inches long, and at the further end a nose: with this the gatherer continually dips the end into the mass of metal, and turning it round takes up a mass about 6 inches in diameter, and revolves it gently round, which makes it assume a spherical shape. He then dips it again into the pot, and takes up another quantity, altogether weighing about 11 or 12lbs., and keeps turning this gently round. He then takes it to the marver, which is a low slab of iron, perfectly level, and called marver from the French "marbre," because it used to be of marble. On this marver the man shapes the mass to a form somewhat like a pear.

It is then taken to another marver, No. 4,

where a projecting point is given to it called the bullion, which afterwards becomes what we call the bull's eye. After shaping, it is taken to the blower at the Pattison hole of the furnace, who heats it and then takes it to the third marver, and makes it assume a flask shape. The man then takes it to the furnace to heat the mass, puts it over a rest, and blows it to a globular shape, and rests it in a bullion cup to support the globe against, while it is being blown to the full size.

In France, the blowing is effected by a very ingenious instrument, which our men however cannot be prevailed upon to adopt. But it is a very trying operation in some species of articles, as, for instance, the common wine bottles. Kohl, in his "Russia," mentions the following curious anecdote in connection with this subject. The emperor wished to illuminate the Alexander Column in a grand style; the size of the round lamps was indicated, and the glasses bespoken at this manufactory, where the workmen exerted themselves in vain, and almost blew the breath out of their bodies in the endeavour to obtain the desired magnitude. The commission must be executed, that was self-evident, but how? A great premium was offered to whoever should solve this problem. Again the human bellows toiled and puffed, their object seemed unattainable; when at last, a long-bearded Russian stepped forward and declared that he could do it; he had strong and sound lungs, he would only rinse his mouth first with a little cold water to refresh them. He applied his mouth to the pipe and puffed to such purpose, that the vitreous ball swelled and swelled nearly to the required dimensions, up to it, beyond it. "Hold, hold," cried the lookers-on, "you are doing too much, and how did you do it at all?" "The matter is simple enough," answered the long beard; "but first, where is my premium?" And when he had clutched the promised bounty he explained. He had retained some of the water in his mouth, which had passed thence into the glowing ball, and there becoming steam, had rendered him this good service.

After being blown to the full size of 20 or 24 inches in diameter, the globe is taken to the bottoming-hole for heating, and blown still larger. It is exposed for the third time to the heat, and made to assume the shape of a flat-bottomed bottle. It is then carried to a rest which is near a cutter's box, so called, probably, because it is used for the next step of breaking off the neck from the other part or flattened sphere. It being put on the rest, a man or boy brings the puntty or puntil, which has a piece of the like hot metal on the point or end, which he presses into a small mould to give it the proper shape, and then sticks it lightly upon the bullion, pressing it gently, and both turning together, and thus making the one adhere to the other. The man takes a wooden mallet, the edge of which he dips in the water, and then smears it at the neck where the more solid metal ends and the thin begins. Having so done, he gives a sharp blow with the mallet, and so detaches the pipe from the globe at the neck or nose, where a circular orifice is produced, 2 or 3 inches in diameter, called the nose. The puntty stickler then carries the glass to the furnace, constantly revolving it, in order to heat the nose-hole.

After this it is carried to another hole of a furnace, called a flashing furnace, where the entire bottle is gradually warmed, first at the ring and then inside, the man constantly revolving it; the intense heat causes the nose to become very soft and yield to the expansive force of the other part; the revolving motion is increased in rapidity, the aperture gradually enlarges more and more, till the whole expands with a sudden burst or explosive sound into a large disk, about 4 feet 6 inches in diameter, the rim or selvage being somewhat thicker. The sheet is then carried to the chimney, where the puntty is detached by the piler with a pair of shears, and the piler and his assistant take it up with a flat fork, called a forchette (from the French), put it into the annealing arch, where it is reared up on its edge, and remains there thirty-six hours, and acquires that hardness which enables it to be applied to the many purposes for which it is required.

The formation of this glass into sheets is thus performed:—The necessary quantity being collected upon the end of the iron tube, as already described, is expanded by the work-

\* The substance of a paper by Professor Donaldson, read at the Institute of Architects, and already referred to.



man's breath into a globular, or rather, into an elliptical shape, of about 12 inches diameter, and of the requisite thickness. This done, the glass is carried to the mouth of the oven, and the end of the tube through which the workman has blown being closed, the further expansion by heat of the confined air causes the glass to burst in its weakest part and assume a cylindrical shape. While still hot and ductile it is then opened by a pair of shears or by a diamond through its entire length into a flat plate of larger dimensions than any produced in crown glass. It is then conveyed to the annealing oven.

The manufacture of this glass has been introduced from the continent in very recent times, and it is now made by some manufacturers in this country, and large quantities are imported from Belgium and elsewhere. The larger square pieces which are obtained of it are an improvement on the crown glass: when looked through it does not distort the objects so much as the commoner qualities of crown, but from its mode of manufacture it has not so good a surface; and, viewed externally, a building glazed with it, although in larger panes, does not look so well as if glazed with crown. Examples of this may be seen in many places in this country, and the shops in continental towns show its objectionable appearance most fully. It is made in this country in five different substances of the respective weights of 13, 16, 21, 26, and 32 ounces to the foot, while single crown glass is about 12, and the double about 16 ounces to the foot. Sheet glass readily takes a stain, and most beautiful colours are produced both in this country and abroad in it. The stouter kinds of sheet are sometimes ground and polished in imitation of plate glass, which it somewhat resembles, and is known by the name of "patent plate." This is a great improvement on sheet and crown, and to the uninitiated often passes for plate glass; and although brought to great perfection by Messrs. Chance, of Birmingham, it is of course inferior, both in size, substance, and correctness of reflection, to real plate.

The most important kind of glass now made is the plate glass, of which there are two descriptions: one of these is produced by casting the melted materials upon a plane metallic surface, somewhat in the manner pursued for making sheet lead; the other, by blowing and opening, in the manner of sheet glass. Plates of glass which are blown are necessarily limited in their size, although some of considerable dimensions are produced in this way. When cast, the extent of the plates may be much greater, and, indeed, is limited only by the very heavy expense attending the erection of machinery and the prosecution of the manufacture in its various parts.

The glass having been thoroughly refined, a large copper vessel, called the *cuvette* (which must be perfectly clean, and, as already mentioned, of a temperature equal with that of the glass) is filled in the following manner:—A copper ladle 10 to 12 inches in diameter, fixed to an iron handle 7 feet long, is plunged into the glass pot, and brought up filled with melted glass, which is transferred to *cuvette*; the ladle during this transference is supported upon a strong iron rest, placed under its bottom, and held by two other workmen. When by successive ladlings the *cuvette* is filled, it is suffered to remain during some hours in the furnace, that the air bubbles formed by this disturbance may have time to rise and disperse; an effect which is ascertained to have ensued by the inspection of samples withdrawn from time to time for the purpose.

As soon as the melted glass in the *cuvette* is found to be in the exact state that experience has pointed out as being most favourable for its flowing readily and equably, this vessel is withdrawn from the furnace by means of a crane, and is placed upon a low carriage, in order to its removal to the casting table. The *cuvette* is then wound up to a sufficient height by a crane, and by means of another simple piece of mechanism is swung over the upper end of the casting table, and being thrown into an inclined position a torrent of melted glass is suddenly poured out on the surface of the table, which must previously have been heated and wiped perfectly clean.

When the whole contents of the crucible have been delivered, a large hollow copper cylinder, which has been made perfectly true

and smooth in a turning lathe, and which extends entirely across the table, resting on the side ribs, is set in motion, and the glass, during its progress, is spread out into a sheet of uniform breadth and thickness. The plate of glass thus formed having been sufficiently fixed by cooling, it is slipped from the table gradually and carefully into one of the annealing ovens, where it remains in a horizontal position for about fifteen days.

The processes followed in blowing plate-glass are, in most respects, similar to those used in fashioning sheet-glass, but some difference is observed; which, indeed, is occasioned as much through the increased bulk and weight of the mass under operation as on account of any real difference in the composition of the fabrics.

Plates which are blown are very limited in size, and cannot properly be made above 45, or at most 50 inches in length, and with a proportionate breadth. They have sometimes been made larger, but are then too thin to admit of their properly bearing the processes of grinding and polishing, and are besides liable to warp, which of course destroys their value when employed as mirrors. The rough or unpolished plate is to be had very cheap, from 10d. to 1s. 6d. per foot, and is now used most extensively, especially for roof lights. Surfaces to the extent of acres are now glazed with this rough plate, at the numerous railway stations throughout the country, and it is used for a great many purposes. It can be bent to almost any form required, so that spherical lights may be glazed with it; a good example of which may be seen in the new Coal Exchange in the City of London. A single piece of rough plate may be bent so as to form a lunette or dome of itself, which is a most convenient and economical way of obtaining a roof light. It can also be impressed with a pattern in the course of casting, such as the diamond pattern given to what is called "Venetian plate." This, when polished on the plain side, makes a very useful and beautiful article to transmit light, and prevent objects being seen through. If the object be to exclude the sun's rays entirely, and to form a complete blind, then rough plate, ground or obscured on one side, answers the purpose admirably. And this also can be bent into domes or portions of spherical skylights.

Rough plate glass is also cast very thick, from  $\frac{1}{2}$  inch to 2 inches thick, and is used to be let into floors and staircases to admit light below. Its great substance and strength enables it to bear any weight without breaking. Many articles of great use are made of rough plate glass, among which plates for tiles and slates may be mentioned as more directly connected with building purposes. For many purposes, when as much transparency as can be had is wanted, compatible with the cheapness and strength of rough plate, blown rough plate is preferable, as being the more transparent.

A purpose to which plate glass has very recently been put, is the formation of transparent ventilators, by perforating it in process of manufacture and while hot. The result is a piece of glass filled with long narrow openings which admit air in a diffused manner, and at the same time does the duty of an ordinary pane of glass for the transmission of light.

The two great uses, however, of plate glass are for the glazing of shops, mansions and the better class of houses, and for mirrors. As an instance of the improvement in this manufacture, in the memory of people now living, a mirror 4 feet by 3 feet was considered a large one, and very valuable; but at this time a glass 14 feet long and 8 feet wide, and comparatively speaking very cheap indeed, may be seen at Donne's warehouse in Leadenhall-street.

The polishing of the plates having been satisfactorily completed, they are washed with water, and are either removed to the ware-room for sale, or, in case of their being intended for mirrors, to the silvering apartment. The last process used in a plate-glass manufactory is that which is called silvering. The application to the posterior surface of mirrors, of some substance that will accurately reflect the rays of light falling upon them, is absolutely necessary to render them useful. The substance which has been found to answer this purpose best is mercury; which, as it cannot be applied

alone in its fluid state, is, by a partial amalgamation, previously made to adhere to the surface, and afterwards to incorporate itself with the substance of a very thin leaf of tin foil.

There has been recently introduced a new and patented process for coating glass surfaces with a deposit of pure silver. This method is quite distinct from one proposed a few years since, for effecting the same object by the agency of the essential oils, which costly materials, with the many objections attending their use, are entirely superseded in the present process by the employment of zaccarine solutions. The deposit of silver is exceedingly thin (a few grains per square foot), and the expense of working has been reduced within such limits as give every prospect of its adaptation to a multitude of useful and ornamental purposes—especially as the brilliancy is greater and the colour warmer and more agreeable than that of the amalgam of tin and quick-silver with which our ordinary looking-glasses are coated, and as it is applicable to every variety of curved surface, the inside of the smallest glass tube being silvered with the same facility as a flat surface. Coloured glass thus coated adds its colour to the metallic brilliancy of the silver seen through it, and thus the effect of gold, bronze, and steel, can be produced in addition to the many harmonious combinations of silver and coloured glass, which the cutting and engraving of surfaces flashed with a thin layer of coloured glass will produce. The silver is protected from tarnishing by the glass to which it adheres, and at its outer surface by a preservative coating of cement; and, thus, by its permanent reflective brilliancy, it is pre-eminently suited for reflectors for lighthouses, and railway signals, and for reflectors generally. Its application to ornamental table glass, to ewerglasses, toilet bottles, flower vases, for instance, are endless; and it is no less suitable for shop-front fittings, for covering up iron pillars, for curved panels; and when embossed or in combination with marbles, ebony, &c., for interior decorations, to cornice mouldings, chandeliers, finger-plates, door-knobs; and, in short, in the hands of the architect, being a new material, its employment will be ruled by his applicative talent.

T. L. DONALDSON.

#### NOTES IN THE PROVINCES.

A NEW stained-glass window has been put up at the east-end of the chancel of Little St. Mary's Church, Cambridge, by Mr. Bolton, now engaged within the precincts of King's College. It contains 350 square feet of glass, and is formed of six compartments, with three different patterns. The cost was about 233*l.*, defrayed by subscription, the Society of St. Peter's College being liberal contributors.—The execution of the bas-relief for the Nelson Column at Charing-cross has prevented the Tindal statue from being cast as yet, but it is expected to be finished, and put up by the March assizes. It has been determined, says the *Chelmsford Chronicle*, to place it wholly outside of the stone pillars in front of the (Essex) shire hall.—Plans and estimates, &c., for the enlargement and alterations of St. Nicholas's Church, Worcester (to which 2,500*l.* was lately anonymously contributed), are to be shortly called for.—A gas consumers' company is to be formed at Bristol, for the distribution of gas at 3*s.* per 1,000 cubic feet.—The interior of the Guildhall, at Bath, has been cleaned, painted, and re-decorated by Messrs. Clare, and it is said, a very low price. Much of the woodwork appears to be done in grained oak, with imitation of marble and granite in pedestals, skirting, &c., relieved by a little gilding in the capitals, light buff ceilings and walls, &c.—The talk of restoring the large west window of Leominster Church has been revived.—An east window has been placed in Eccleshall Church. It is lancet-shaped, and of three lights. Messrs. Drury and Smith were the artists, and a parishioner paid the cost.—It is proposed to erect a large public hall at Bradford as well as at Leeds.—The bill of Hoard, near Morecambe Bay, has been fixed on by the Admiralty as the site of Sir John Barrow's monument.—A new congregational church lately erected at Berwick, Mr. Oliver, jun., architect, was formally opened on the



18th ult. The style is Early English. In the western gable, which is surmounted by a buttressed belfry, there is a large triplet window. The structure is of the following dimensions:—From outside to outside 50 feet in front, 70 feet in length, and 80 feet high to the top of the belfry. One roof spans the entire width, which is of Queen-post construction. It has cost a little more than 1,000*l.* (ground exclusive), and is competent to accommodate 500 persons. We do not pretend to explain how such things are done.—It is proposed by the superintendent of streets and buildings at Edinburgh (Mr. Blyth) to widen the north breadth of that city, by adding in all upwards of 5 feet in breadth to the foot pavements, taking away the present heavy balustrades, and substituting a light railing, covered outside with sheet zinc or iron, to the height of  $\frac{1}{2}$  feet, the rail above being ornamental as well as light; the whole to be secured at intervals by staves. The ugly dead walls at each end he also proposes to replace with the centre balustrades.

#### NEW WELSH EDUCATIONAL INSTITUTION.

On the 13th ult., the first stone of the new Educational Institution at Llandovery was laid by the Lord Bishop of St. David's, the object of which is to enable the sons of the middle classes of Wales to enter into honourable competition with their hitherto more favoured brethren on the eastern side of the Severn.

The building, as we understand, will be in the Gothic style, of a collegiate character, irregular in outline. The walls will be of a light grey stone of the locality, with Bath stone dressings. The plan comprises a large examination-hall with open timber roof, four class-rooms, cloak-room, dining-hall, committee-room, library, teachers'-room, dormitories for about thirty boarders, sick-wards, bath-rooms, lavatories, kitchens and other offices, and a commodious residence for the warden and his family. The works are to be completed in twelve months. Messrs. Fuller and Gingell are the architects. After the ceremony, about eighty of the supporters of the institution dined together, the Venerable Archdeacon Williams acting as the chairman.\*

The efforts now making in Wales to raise the intellectual character of the people can scarcely fail to produce an advantageous result, and must be regarded by all with interest.

#### BOOKS.

*Church and Chapel Architecture, from the earliest period to the present time; with an account of the Hebrew Church.* By ANDREW TRIMEN, Architect. London: Longman and Co., 1849.

THE most novel portion of the volume named above is an account of the Hebrew Church, commencing with the Temple of Solomon, and ending with the new synagogue in Margaret-street, Cavendish-square; and the most useful part of it is a collection of one thousand mouldings, collected from mediæval structures in twenty-seven counties in England. "These are arranged in their proper chronological order, and, as far as possible, in a regular

series in each order." It is to be regretted that no scale is given with these. Mr. Trimen has collected much useful information.

*Modern Tombs, or Gleanings from the Public Cemeteries.* Measured, drawn, and etched, by ARTHUR W. HAKEWILL, Architect. London: Longman and Co.

THIS is an endeavour on the part of Mr. A. Hakewill to draw the attention of the public to the very erroneous system so generally pursued in England, of employing the mere mason and mechanic to design tombs, instead of calling in the sculptor and architect. The present part (one of four), contains fifteen plates, and the whole, when finished, will exhibit fifty designs. The first etching in the book, is a representation of a large monument recently put up in the West London Cemetery, at Brompton, at a cost of 400*l.*, in memory of John Jackson, the celebrated pugilist. It is about 12 feet high, surmounted by a couchant lion, and displays two upright figures of athletes, one at each end, in full relief. Mr. Butler was the sculptor. We shall have an opportunity to speak of the work more at length on the appearance of another part, and in the meanwhile recommend it for purchase.

*The Fine Arts Almanac, or Artists' Remembrancer for 1850.* London: Rowney and Co.

This work is edited by Mr. R. W. Buss, and contains a large amount of valuable information and agreeable reading. The constitution of the various art exhibitions, the names of officers and the regulations of art societies and schools, &c., &c., are set forth very fully: some valuable information is given on the subject of costume; and the notes of the twelve months, which occupy 80 pages of small type, comprise memoirs of numerous artists and art-lovers, written in a pleasant style. Mistakes have, of course, crept in: thus, Sir C. Bell's death is placed under two dates—29th April and 29th November—with a notice of him in each case; but these it is difficult to avoid in stating a large number of facts, and Mr. Buss is entitled to great praise for the able manner in which he has executed his task.

#### Miscellanea.

**STUDENTS' SOIREE, MANCHESTER SCHOOL OF DESIGN.**—An idea, originating with the students, and continued with the countenance of the council and the masters, was successfully and happily carried out at the Manchester School of Design on Wednesday week. The school was temporarily converted into a saloon, and among the guests invited by the students to their "soirée" were the principal, Mr. Hammersley, and his colleagues, Mr. Kidd and Mr. Dodd, besides various members of the council, students from Nottingham, and others. The walls were adorned with the fruits of many a day's labour in the "saloon" itself. The senior student, Dr. Charles Bell, being called to the chair, addressed the meeting, and while pointing attention to what had been already done, expressed a hope that Manchester would show in the course of the opening year that it was about to become as distinguished for design as it had been for manufacture. Mr. Hammersley, in responding to a complimentary vote, gave his students some good wholesome advice, not the less worthy some of it of serious adoption, that it was given in good-humoured banter, about the irreverence of standing with covered heads in presence of the works of Phidias and other great masters, with a familiar nod for Jupiter, a sort of shake of the hand for Apollo, and a strut with tucked coat tails, and other liberties of irreverence, amongst the *dei minores*. Tokens such as these betrayed a downright incapacity to appreciate art, and were quite inconsistent with that earnestness of spirit which a worthy student ought to manifest. Mr. Kidd was duly honoured with a respectful vote. Mr. Brook, in proposing "The architectural, geometric, and perspective classes," with thanks to Mr. Dodd, drew attention to the fact that many of the architectural drawings were executed by workmen, who laid down their tools and took up the pencil after a hard day's work.

**PROJECTED WORKS.**—Advertisements have been issued for tenders, by 14th inst., for the erection of carriage sheds, at various points on the South-Eastern Railway; by 20th, for the erection of schools at Durdham Down, near Bristol; by 21st, for the works or buildings for stations to be erected on the Great Northern Railway; by same date, for the execution of the whole or any portion of the stations, warehouses, gate lodges, locomotive buildings, &c., on same line, between King's-cross and Peterborough; by 11th, for the erection of St. Luke's parsonage-house, Leeds; by a date not specified, for the erection of two coal staiths on the Tyne; by 7th, for the several works required for the enlargement of the Wesleyan Chapel, at Pontefract; and by 9th, for the mason and brickwork, metal girders, &c., in the erection of coal depôts in the central station at Leeds.

**COMPETITIONS.**—Advertisements have been issued for plans, &c., by 14th February, for a new workhouse for the Wortley Poor-law Union, to accommodate 150 inmates, as advertised,—no payment for plans not approved and adopted by the guardians; also by 19th inst., for alterations and additions at Stapleton Asylum, for the corporation poor, Bristol; no specific details, conditions, or terms.

**IMPROVEMENTS IN EARTHENWARE PIPES, &c.**—A patent has been granted to Mr. B. A. Burton, of Holland-street, Southwark, for improvements in the manufacture of pipes, tiles, bricks, stairs, copings, and other articles required for building purposes. The process hitherto adopted in the manufacture of pipes from plastic materials consists of forcing the clay through a die, so as to form the pipe, and afterwards baking the pipe in an oven. In addition to this process, Mr. Burton proposes, after the pipes have been formed, and whilst in a plastic state, to subject them to a certain amount of pressure, by passing them between rollers, whereby it is said that pipes, after they have undergone this process of compression, are not only stronger, and consequently more durable, but also more regular in their structure, and smoother; so that they will offer less resistance to the passage of fluids, and will also be less liable to the accumulation of deposit. The clay having been forced through the die in the form of a pipe, slips over a mandrill, attached to the centre part of the die; the lower end of the mandrill being made to project a little beyond the centre line of four rollers, all moving in the same direction, and with the same surface velocity, so that the clay pipe is drawn between the rollers, and over the end of the mandrill, whereby the particles of matter become compressed or consolidated to such an extent, we are told, that, when baked, they have been found, by repeated experiments, to be upwards of 75 per cent. stronger than pipes manufactured in the ordinary way. In the case of a stairs tread, the rollers forming the front and top of the step may be engraved so as to form an ornamental step. The inventor states, that by the application of the eccentric, or convolute rollers, a great variety of articles applicable to building purposes may be moulded and compressed as above described. In addition to the above, the specification describes a mode of making bends for pipes; also a variety of machines for cutting socket or rebate and screw joints upon the ends of pipes.

**COPYISM, BRISTOL.**—I have always felt grateful to you for perseverance in denouncing mere copyism in art, and I trust you will therefore allow me to make a few slight additions to your recent notice of a new church in Bristol. 1. The windows, with one single exception, have been obtained from "Brandon's Analysis," and this one exception is a window obtainable everywhere. 2. The gable crosses have been procured from the same source. 3. The gable knicks ditto. 4. The parapet of tower ditto. 5. The font ditto. 6. The tracery of screen ditto. I am not quite certain about the south doorway, and the sedilia, &c. Truly, Sir, matters have come to a pretty pass when, in a city once the second in rank in England, a city famed for its commerce, its wealth and its arts, and, above all, for its architecture, a church formed from the above recipe should have been erected under the auspices of a society which has constituted itself the *arbiter* of the ecclesiastical architecture of the "far west." B.

\* The chairman warmed into eloquence when he spoke of his country. He reminded the meeting that George the Fourth, in passing through Wales, was so struck by its scenery, as to exclaim, "My Jove, this land was well worth fighting for!" It was well worth fighting for, so thought the Saxon and Norman of old; but never yet did the foeman set foot as conqueror in this valley. He believed that had St. George or Southey selected this district their inspiration would have been kindled, and their imaginative spirits would have been able to soar in a higher and purer atmosphere than those which they found elsewhere. We have here more to show in the present, more to point to in the past, than the Persians can boast. We have, 23 miles from here, amid the region through which the tributaries to the Towy flow, through rugged courses—the cures of Twin Shon Cully—replete with the wildest scenery which imagination can conceive of, or the pencil of painter ever depicted. We have in another spot Castell Corrig Cerrig, a fragmental fort that has towered proudly o'er the vale to this day, its overgrown, from time unknown. We know it not much by name in history, for history speaks more of the vanquished and the fallen than of that which stands unshaken amidst all the changes and convulsions by which nations are overthrown, or cities and lordly castles become dismantled and untenanted. He believed that the day would come, with the aid of such institutions as they had that day laid the foundation stone of, when these scenes would find a chronicler, and when Llandovery and its neighbourhood would become as familiar to the travelled Englishman or foreigner as the land on which the genius of Scott has conferred immortality.



**PROGRESS.**—At the annual *soirée* of the Beverley Mechanics' Institute, in connection with the East Riding Union of Institutes, a fortnight ago, the Rev. Mr. Aspinall, rector of Althorpe, said, "When we see all that is now doing to stimulate and develop the intellect of the masses, the printing-press, that mental railway so busily at work, the cheap trains of literature laid on in all directions, the steam of education well up, and the engineers and stokers, schoolmasters and tutors, so actively employed in every quarter of the land, when, I say, we behold such things we may venture to anticipate the arrival of a time when an untaught and ignorant man in society shall be as great a rarity as a mummy translated from the Egyptian pit to the British Museum; and as education makes its way from city to town, from town to village, from village to cottage, in the valley and on the hill side, as it fulfils its glorious, humanizing, civilizing, Christianizing mission, comforting the solitary spirit toiling at his loom, illuminating the workshop, irradiating the factory, inspiring the masses, spreading itself into the most remote nooks and corners of the land, and accompanying and elevating the mariner in his night-watches upon the ocean,—as I behold and rejoice in such things, I cannot help thinking that there is a time, a good time, coming when an ignorant man, thrusting himself into any company, any class of society, shall be looked upon as the *frightful example*, to remind us of the hideous yoke of darkness from which we have escaped. But what will become of society if you thus make the advantages of education universal amongst all its gradations? Will not each class be treading upon the heels of that before it, and so all be thrown into chaos and confusion? No such thing. Look at the time, the means, the opportunities which those who occupy the higher walks of life have to devote to their intellectual cultivation and improvement. If, with these at their command, they cannot keep before the poor working man, the toiling mechanic, the laborious clerk, who have only the small residue of their after hours, when the business of the day is over, to spend at the institute, or bestow upon reading at home, then do they deserve, not only that these last should tread upon their heels, but upon their toes likewise, and make them most uncomfortable until they quicken their pace, and do their duty to themselves, to their age, and to the advantages which they possess."

**DERBY.**—Plans have been prepared for the enlargement of St. Werburgh's Church, Derby. The works are to be proceeded with early in the spring. A faculty has been applied for by the Vicar of St. Peter's Church, Derby, to enable him to throw down a very ugly gallery extending across the west-end of chancel, and entirely obstructing the view of the stained-glass east window from the nave, as well as shutting out the major part of the galleries from the view of the clergyman at the altar. The faculty is also to include powers to enlarge and alter the existing fabric, so as to give 400 additional sittings. The population of this parish is 16,000, and only church accommodation for 640. The whole pile should be taken down. A new refreshment-room has been erected in the Arboretum, from the designs of Mr. Stevens. The new church of St. Paul's, at Derby, is rapidly approaching completion. The smallness of the west-end and aisle windows have a very bad effect. Want of funds was the cause, *on dit*. A great number of new buildings are in course of erection at Derby, which promises to become an important town. The improvement commissioners have been at work lately. The Derby Water-works are progressing, and should be quickly finished, to enable the sanitary measures to have their proper effect. Much remains to be done. The subject of the improvement of the dwellings of the poorer classes has been advocated in the *Mercury*, by the Vicar of All Saint's, and Mr. Wigginton, backed by a leading article.

**THE NINEVEH-ROOM IN THE BRITISH MUSEUM** should be visited by all who have the opportunity. The sculptures which it contains, full of deep interest, are vividly suggestive. On the day after Christmas-day 20,000 persons passed through the Museum. The most perfect order prevailed.

**METROPOLITAN SEWAGE MANURE COMPANY.**—The last report of the Directors to the shareholders in the Company, now printed, states that "25 occupiers of land have become customers; and that they have contracted for the supply of the sewage to above 100 acres of land, at an aggregate rental of 400l. per ann. But the land thus actually contracted for, and already receiving the benefits of a supply of sewage, is only one-eighteenth part of the whole area which the present works of the Company are constructed to supply. Consequently, when the remaining occupiers (satisfied by the evidence of results, as they may see them in the lands of their neighbours who are now using the sewage) shall avail themselves also of its advantages, the annual revenue in rental of sewage will be about 5,000l. per annum. It is found, by careful calculation, that this revenue would pay a dividend of 10 per cent. to the shareholders upon the capital employed in this district, and its proportion of the preliminary expenses." The replies from market-gardeners and others who have used it, seem satisfactory. The Directors are endeavouring to reduce their expenses. The balance sheet is not given with the report.

**METROPOLITAN SEWERS COURT.**—A special court was fixed to be held on the 28th ult., for the purpose of confirming the bye-law with reference to the appointment of Mr. Frank Foster as engineer to the commission, at 1,500l. a-year. The number of commissioners required by the Act of Parliament to be present not being made up, the court was adjourned for a fortnight. A general court was held afterwards, but the business transacted possessed no public interest. The commissioners may believe us implicitly when we say that the above appointment is regarded as a lavish expenditure of the rate-payers' money, and is very unpopular.

**BRIDGEWATER PARISH CHURCH.**—Tenders being sought for re-seating Bridgewater Church, Messrs. Dickson and Breakspere, architects, six were sent in as follows:—

Hutchings, Bridgewater .....	£550
Perry, Weston-Super-Mare .....	479
Mason, Exeter .....	454
Shawbrook, Taunton .....	436
Wainwright, Bridgewater .....	416
Pollard, Taunton .....	415

Mr. Wainwright's tender was accepted. Mr. Pollard, whose tender was the lowest, has addressed us on the subject, complaining of the preference given to another, and maintaining that the lowest tender should be accepted if the party be responsible, or at all events when circumstances render a different mode of procedure desirable, that he should be remunerated for his trouble and expenses. As a general rule, we agree in this. A townsman would naturally have an extra claim, and the difference here was very small; still it is only fair, when competition is invited, that the lowest tender, when made by a responsible and competent party, should be accepted.

**SCARBOROUGH INDEPENDENT CHAPEL COMPETITION.**—Mr. Raffles Brown has addressed communications to us with reference to a paragraph on this subject in a previous number (p. 608, *ante*), showing that the instruction contained no stipulation that the competitors' names should be concealed, and were not intended to do so. Mr. Brown will find, on reference to the paragraph, that it goes no farther than giving the assertion of one of the (seven) competitors, that he had personally been led to consider the designs were to go in anonymously.

**BURNING THE DEAD.**—An association has been formed, at the City of London Mechanics' Institution, to promote the practice of decomposing the dead by the agency of fire. The members propose to burn, with becoming solemnity, such of their dead as shall have left their remains at the disposal of the association. The entrance fee is 1s.; and the council meet to enrol members, &c., on the second and last Wednesday in each month.

**SCHOOL OF DESIGN, SOMERSET HOUSE.** There is to be an exhibition of the works of the students at the School of Design next week. We understand that several of the masters intend to exhibit ornamental designs of their own, in proof of their ability.

**PROFESSOR COCKERELL** commenced his course of lectures on architecture at the Royal Academy, on Thursday, the 3rd inst.

**THE ADELPHI THEATRE, STRAND.**—The extravaganza here, "The Model Man," a laughable *travestie* of "Frankenstein," has several very clever scenes, especially a Gothic chamber with fire-place, and statues lining the sides. A lamp-post in one scene is worth notice, and in the last scene, of fairy caverns, the effect of great extent is cleverly produced. Bad drains, water, and London churchyards are rightly handled. "I come," says a water nymph, "from coral groves and crystal gems," and the natural remark is, "Lor! what a different river from the Thames."

**BATHS AND WASHHOUSES IN FRANCE.**—It appears from a letter by Mr. W. Hawes, in the *Times*, that M. Dumas, the French Minister of Agriculture and Commerce, has announced the intention of the President of the Republic to prepare a *projet de loi*, for the establishment of public baths and washhouses in France.

**THE EXHIBITION OF 1851.**—At the Royal Dublin Society's Rooms, last week, Mr. Richard Turner, who constructed the Conservatory, at Kew, as well as that in the Regent's-park, exhibited the model of an enormous structure of iron and glass, suggested for the proposed exhibition in Hyde-park.

**HOUSES FOR THE VERY POOR.**—A correspondent says as regards the plan proposed by Mr. Netherway for small houses, that the idea of dividing the accesses to the stories is carried out at "Turner's-buildings," on the estate of Sir James Esdaile, Wenlock Basin, City-road.

**LEICESTER WORKHOUSE COMPETITION.**—By a vote of thirteen to twelve, the guardians have selected the plan of Mr. W. Parsons. The estimated cost of the enlargement on this plan is 12,500l., or with the site, about 14,000l.

## TENDERS

For the Northampton Corn Exchange: Mr. Alexander, and Mr. Hull, Architects.

	With side windows to Great Hall, and using the old materials.	With blank windows to Great Hall.	Using no old materials: ground cleared.
Pollock and McLenan, London .....	9,488 0 0	9,238 0 0	9,588 0 0
Curtis, Stratford .....	8,904 0 0	8,504 0 0	8,904 0 0
W. Jerrom, Leicester .....	8,634 0 0	8,337 0 0	8,614 0 0
W. Trego, London .....	8,570 0 0	8,295 0 0	8,079 0 0
W. A. Watson, Whitacre .....	8,098 0 0	7,968 0 0	8,098 0 0
Sisson and Robinson, Hull .....	8,479 0 0	7,789 0 0	8,479 0 0
C. Ireson, Northampton .....	8,060 0 0	7,800 0 0	8,460 0 0
T. Burton, London .....	7,890 0 0	7,680 0 0	7,890 0 0
J. Ferguson, Nottingham .....	7,728 0 0	7,458 0 0	7,357 0 0
G. Thompson, Derby .....	7,495 0 0	7,170 0 0	add 150l.
* R. Dunkley, Blisworth .....	7,494 6 4	7,170 4 8	7,670 4 8
W. Parker, Thrapstone .....	7,317 0 0	7,069 8 0	7,950 0 0
† G. Smith, London .....	6,141 0 0	5,918 0 0	6,741 0 0

\* Accepted.  
† Mistake—An accidental error of 3,000l., afterwards discovered by Mr. Smith.

For the Northampton Bank: Mr. Law, Architect.

Coker, Desborough .....	22,663
W. and A. Williams, Luton .....	2,450
Boddington, Northampton .....	2,440
Sisson and Robinson, Hull .....	2,389
Jerrom, Leicester .....	2,322
Dunkley, Blisworth .....	2,240
Ireson, Northampton .....	2,200
Green, Leamington .....	2,175
R. and J. Curtis, London .....	2,144
Burton, London .....	2,085
Ferguson, Nottingham .....	2,073
Parker, Thrapstone .....	2,060
Thompson, Derby .....	2,025
Green, Northampton .....	1,995
Watson, Whitacre .....	1,945
Conford and Faber, Northampton (accepted) .....	1,866

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# The Builder.

No. CCCLXII.

SATURDAY, JANUARY 12, 1850.

**I**NIGO JONES is a great name in our art; any additional information concerning him will be welcomed. Let us look through the short memoir of the architect written by Mr. Cunningham, and recently published by the Shakspeare Society, and see if it will afford us any notes likely to interest our readers. The same volume contains a series of sketches by Inigo, in connection with the apparel of characters in the Royal entertainments of King James I. and Charles I., made, if not during the lifetime of Shakspeare, very shortly after his decease. These, if they do not of themselves quite justify Vandyck's assertion that Inigo's skill in designing with his pen was "not to be equalled by whatsoever great masters of his time, for boldness, softness, sweetness, and sureness of his touches," show singular command of the pencil and knowledge of the figure. This facility led to his frequent employment in the getting up of masques and other performances at Court. "His public appointment," says Mr. Payne Collier in the preface to the volume before us, "was in some sort connected with these representations, and we know from many authorities, particularly from several remarkable passages in Ben Jonson's "Masque of Queens," comprised in the present volume, that for the contrivance of the machinery and for the painting of the scenes themselves, the poets of that day were very commonly indebted to Inigo Jones." The Duke of Devonshire has in his possession several boxes of his designs for scenery, some of them splashed with the distemper used for the purpose of producing them for use. In the explanation of some of these sketches Mr. Planché has given his aid, and, by his knowledge of early costume and the antiquities of the stage, has materially increased the interest of the volume.

Jones was born in 1573, and christened in St. Bartholomew's Church, Smithfield. Walpole says he was bound apprentice to a joiner. His father, who died when he was 24, had little to give him, and from his will, which Mr. Cunningham found in Doctors' Commons, still less to leave him. Our author doubts the received story that Jones was sent to Italy by either Lord Arundel or Lord Pembroke, Jones's own words, in his work on Stonehenge, do not bear it out; for he says there simply,—"Being naturally inclined, in my younger years, to study the arts of design, I passed into foreign parts to converse with the great masters thereof in Italy:" where, otherwise, he obtained funds, however, does not appear. He was engaged for some time in Denmark, and we first hear of him in England in his 32nd year, when, in conjunction with Ben Jonson, afterwards his violent detractor, he prepared a masque for the Queen of James I., the sister of the King of Denmark, by whom he had been employed. Jonson's description of the "bodily part" of this, "which was Master Inigo Jones's design and act," is the earliest notice we possess of the use of scenery in stage-entertainments. Some curious particulars are given from Ben Jonson's works,

and other sources, of the bold inventions by Jones for other similar entertainments.

An entry of the payment of 13*l*. 6*s*. 8*d*. to "Inico Jones," in the books of the Treasurer of the Chamber to the King, shews he was then employed "carreinge Lrs for his Mat<sup>y</sup> service into Fraunce." In 1610-11 he was again engaged with Jonson on a masque for the queen, and the bill of costs discovered amongst the Pell Records contains, "*Inprimis* to Mr. Benjamin Johnson, for his invention 40*l*. Item to Mr. Inigo Johnes, for his paynes and invention 40*l*;" besides a previous payment to Jones of 238*l*. 16*s*. 10*d*., apparently for money expended. In 1610 Prince Henry was created Prince of Wales, and Inigo Jones obtained the appointment, in his new household, of Surveyor of the Works.

"The fees he received are recorded in the roll of the Prince's expenditure:—

"Inigo Jones, Surveyor of the Woorkes, for his fee, at *iii*<sup>d</sup> per diem, for one whole year and a half and xl<sup>th</sup> days, begonne the 13<sup>th</sup> January, 1610[1], and ended at the feast of St. Michael the Archangel, 1612.—lxxxvij. *ij*. vj<sup>d</sup>."

"Inigo Jones, Surveyor of the prince's Woorkes, for his fee by lres patentes, at *iii*<sup>d</sup> per diem, for xxxvij dayes, begonne the first of October, 1612, and ended the vijth of November followinge . . . xxi<sup>th</sup>."

This appointment terminated with the death of the Prince in 1612. He now paid a second visit to Italy, taking works of reference with him, and noting his observations.

"His copy of Palladio (the folio edition of 1601), preserved at Worcester College, Oxford, contains an entry dated 'Vicenza, Mundaie, the 23rd of September, 1613;' and one of his sketch-books (a thin octavo, in a parchment cover, with green stripes, now in the possession of the Duke of Devonshire) exhibits his name on the fly-leaf, with 'Roma, 1614,' written in his fine bold hand beneath it.

The copy of Palladio is as rich with notes in Inigo's handwriting as the Langbaine, in the British Museum, is with the notes of Oldys. One of his entries commences thus:—"In the name of God, amen. The 2 of January, 1614, I being in Rome, compared these desines following with the Ruines themselves. Inigo Jones." At folio 64 he has written:—"The staires at Chambord I saw, being in France, and there are but 2 wayes to ascend, y<sup>e</sup> small hath a waal, w<sup>th</sup> windowes cut out, but this, y<sup>e</sup> seems, was discouered to Palladio, and he invented of himself these staires." His Palladio was his inseparable companion, wherever he went; and contains the names of 'Andrea Palladio' and 'Inigo Jones,' coupled together in his own handwriting—such was his admiration and such his ambition. At b. iv., p. 41, occurs the following entry:—"The Temple of Jove, vulgarly called frontispicio di Nerone, or a basilica, sum call it a Temple of the Sun, and that is likeliest." The book was with him, as appears from his own entries, at 'Tivoli, June 13, 1614;' at 'Rome, 1614;' at 'Naples, 1614;' at 'Vicenza, 13 Aug., 1614;' and at London, '26 January, 1614;' i.e., 1614-15. Nor did he cease to carry his Palladio about with him even in his progress in England, as surveyor of the works. The following is written on a fly-leaf:—

"The length of the great court, at Windsor, is 350<sup>ft</sup>, the breadth is 260: this I measured by paces the 5 of december, 1619.

The great court at Theobalds is 159<sup>ft</sup>, the second court is 110<sup>ft</sup> square, the third court is 88<sup>ft</sup>—the 20 of June, 1621.

The front of Northampton Ho. is 162<sup>ft</sup>, the court is 81<sup>ft</sup>.

The first court at Hampton Court is 166<sup>ft</sup> square.

The second fountaine court is 92<sup>ft</sup> broad and 150<sup>ft</sup> longe.

The Greene Court is 108<sup>ft</sup> broad and 116<sup>ft</sup> longe, the walkes or cloysters ar 14<sup>ft</sup> betweene the wallles. September the 28, 1625."

Of the Temple of Jove he thus writes, June 13, 1639:—"Clemente scotter Romano tould mee that the ruines of this temple is pulld all downe, to haue the marble, by the Constable Barbannos Collona, by the popes permiti-"

this was the noblest thinge which was in Rome in my time. So as all the good of the ancients will be utterly ruined ear longe."

In 1615, he returned to become surveyor of the works to the king.

"His pay commenced from the 1st of October in that year; at the rate of eight shillings a day for his entertainment, eighty pounds per annum for his 'recompence of auailes,' and two shillings and eightpence a day for his riding and travelling charges. His riding expenses were subsequently raised, but the fees I have quoted were the fees of the office at the period of his appointment. He had other emoluments. The warrant to the Master of the Wardrobe, on his first appointment, dated 16 March, 1615-16, directs that he should receive 'five yards of broad cloth for a gown, at twenty-six shillings and eightpence the yard; one fur of budge, for the same gown, price four pounds; four yards and a half of baize, to line the same, at five shillings the yard; for furring the same gown, ten shillings; and for making the same ten shillings.' The cost of the livery was therefore 12*l*. 15*s*. 10*d*.; and this sum was paid to him yearly, as surveyor of the works, by the Master the Wardrobe."

The pressing nature of his duties brought him at times extra rewards: notes of a few of these Mr. Cunningham was fortunate enough to discover in the Accounts of the Treasurer of the Chamber:—

"To Inigo Jones, Surveyor of his Mat<sup>y</sup> Woorkes, the Comptroller, M<sup>r</sup>. Carpenter, and Clerke of the Woorkes at Whitehall, upon the Councells warr<sup>t</sup>, dated xv<sup>th</sup> Nouembris, 1620, for performing certen woorkes in the Star Chamber in february 1616, January and february 1618, and April and Maye 1619, by the space of fortie dayes, and for making of a Hearse for the Queenes funeral . . . xli."

"To Inigo Jones, Surveyor of the Woorkes, Thomas Baldwyn, Comptroller, and Will<sup>m</sup>. Portington, M<sup>r</sup>. Carpenter, upon the Councells Warr<sup>t</sup>, dated ultimo Decembris, 1620, for making readye and repayinge Elye House, in Holborn, for the Spanish Ambassador . . . xxi<sup>th</sup>."

On the 12th of January, 1618-19, the old Banqueting-house, Whitehall, was destroyed by fire. By the 1st of June, in the same year, the ground was cleared, Jones ready with his design, and the first stone of the new Banqueting-house laid. Relative to this, there is the following entry in the accounts of the Treasurer of the Chamber:—

"To Inigo Jones, upon the Councells warr<sup>t</sup>, dated 27<sup>th</sup> June, 1619, for making two several monies, the one for the Star Chamber, the other for the Banqueting House . . . xxxvij<sup>th</sup>."

This entry escaped Vertue and Walpole, but a more curious discovery was the roll of the "Charges in Building a Banqueting-house at Whitehall, and erecting a new pier in the Isle of Portland," preserved at the Audit Office, and of which we gave the substance in a previous number.\*

For the Banqueting-house the "Knights Marshall's Man" was employed to impress workmen. In a letter to the Earl of Arundel, dated 17th August, 1620, Jones says:—"The Banqueting-house goith on now well, though the going of the masons awaye have byne a great hinderance to it."

"While the works at Whitehall were in progress, a commission was appointed by the Crown 'to plant and reduce to uniformity Lincoln's Inn-field, as it shall be drawn by way of map or ground plot by Inigo Jones.'"

Jones's quarrel with Ben Jonson for putting his name on the title-page of a masque before that of Jones, and the poet's bitter poetical satires against Inigo, are well known. In an "expostulation" with Inigo Jones, he sneers at his "twice conceived and thrice paid for imagery," and in the play called "A Tale of a Tub" he introduced the "Master Sur-

\* See page 362, Vol. VII.



veyor" as "Vitruvius Hoop," but through the exertions of Jones this character was struck out by the Master of the Revels. As "Medley, the joiner, In and In, of Islington," his peculiarities are ridiculed.

—"In and In  
Draws with no others in's projects: he will  
tell you  
It cannot else be feasible or conduce:  
These are his ruling words, please you to hear  
'un?"

These words, *feasible* and *conduce*, are elsewhere repeated, as characteristic expressions.\*

Mr. Cunningham excuses Jones's application of a classic portico to the Gothic St. Paul's, on the ground that it was the wish of the king that the whole edifice should be rebuilt, and that the portico was not an addition to the old building, but an instalment of a new one. To get room round St. Paul's, Inigo removed St. Gregory's Church, and, with the dispute with the parishioners that followed, began his troubles, which, as most of our readers know, lasted him till his death, and hastened it. Webb, his executor, who married a kinswoman of Jones, and is sometimes erroneously called his son-in-law, says that he was neither ambitious nor arrogant, but it must be confessed that he displayed a domineering and dictatorial spirit in this controversy. He was fined as a Papist, and imprisoned, and died full of sorrow at Somerset House in the Strand. The date of his death has been erroneously stated by various writers, and it was left for the author of the present memoir to settle, by the register of St. Bennet's, Paul's Wharf, where Inigo was buried, that it took place on the 21st June, 1652.

After a list of the works attributed to Jones, our author says:—

"That the designs of Inigo were not restricted to a new Whitehall, and palaces at Greenwich, Newmarket, and in the Strand (on the site of Somerset House), the portfolio of his drawings at Worcester College affords most striking evidence. In this valuable folio are found, 'upright for my Lord Maltravers his house at Loatbury, 1638'—'Mr. Surveyor's designs for St Peter Killigrew's house in the Blackfriars'—'ceiling of the Countess of Pembroke's bed-chamber'—'ceiling of the great staircase at Wilton'—'for the ceiling in the Cabinet-room, Wilton, 1649'—'ceiling of the Countess of Carnarvon's bed-chamber'—'ceiling of the Countess of Carnarvon's withdrawing-room'—'an enriched and gilt ceiling, in panels, for York House, with the Duke of Buckingham's motto, 'Fidei Cœlicæ Cruz,' worked in, as on the Water-gate; 'wainscott and moulds for the Consultation-room at Physician's College,' dated 1651, and marked 'not taken'; with designs for temples (Parthenon-like, with statues and pediments filled with sculptures) for churches, one of which Gibbs must have seen, and another with obelisks on towers—'for a Fountain in a Wall at Greenwich, 1637'—'for 'Exchanges or Merchants' Piazzas'—and for the 'Office of the works at Newmarket.' In the same folio I observed an exquisite pencil drawing for a portion of the Banqueting-house, with the statues; an early and different design for the church in Covent Garden; a most delicately pencilled drawing of the portico to St. Paul's, with the statues; a design 'for the model of the Star Chamber,' dated 1617; and two 'uprights' (one especially fine and large) 'of the Palace at Somerset House,' dated '1635,' and marked 'not taken'—an elevation and ground-plot for a new house for the Earl of Pembroke, on the site of Durham House, in the Strand, and signed 'John Webb.' The ground-plot is marked 'not taken,' and dated 1649."

Mr. Cunningham concludes his interesting

\* Medley is made to say that his father named him

—"In and In Medley, which serves  
A joiner's craft, because that we do lay  
Things in and in, in our work. But I am truly  
Architectonical professor, rather;  
That is, as one would say, an architect."

memoir, by pointing out that the rambling and incoherent manuscript notes about Jones, written in the copy of "Stonehenge Restored," formerly in the Harleian Library, and usually ascribed to Philip Herbert, fifth earl of Pembroke, could not have been so, since the earl died in 1650, and the book in which they were written was published in 1655. He is disposed to attribute them to Sir Balthazar Gerbier.

#### PROFESSOR COCKERELL'S LECTURES ON ARCHITECTURE, AT THE ROYAL ACADEMY.

In the first lecture on the 3rd inst., the professor hailed the returning season of his labour with pleasure, but with great solicitude, lest he should fail to make them useful to the student. He enlarged, after the example of Vitruvius, on the qualifications and education required for the practice of the art and science of architecture, and exhorted the students to appreciate justly the advantages which London, of recent years, had presented, in the two colleges of our University and the School of Design, in addition to the Royal Academy. For success in his career, nature should have given him a constructive faculty, a sense of beauty, and an observant quick inventive mind. These qualifications should be strengthened, enlarged, and rendered more acute by the study of the mathematics. By these he would acquire precision of thought and expansion of capacity, and would be enabled to appreciate numerical and geometrical magnitude, so essential to his practice, that Sir C. Wren had given these precedence to every other qualification; for, great as he was in the poetical and imaginative of our art, the motto he had adopted was "numero, pondere, mensurâ."

But vast as are the advantages of this branch of intellectual culture, it had its defects, in giving too partial a direction to the mind, to the prejudice of other pursuits. Great mathematicians have often appeared to be wholly unfitted for other studies; and it was consoling to the simple workman to find the senior wrangler, with all his advantages, often at a non plus before a simple architectural problem. Indeed, proof and demonstration are the office of the mathematics; science explains what art and nature invent,—as, indeed, consent of language points out, when we say "arts and sciences,"—giving precedence to intuitive invention. Mechanics, in its various branches, statics and dynamics, were no less important to the equilibrium of his buildings; in which our Gothic cathedrals especially, and, indeed, minor edifices on clay foundations, furnished continual sources of study and observation. Animal mechanics were not only advantageous to our studies, but (in a manufacturing country), also to our pockets, patents being frequently established on the intelligence and adoption of nature's inventions. Optics and perspective had vast influence on our art; the latter was lamentably in abeyance in our scenography at this period, effect and colour being substituted. Of this fact, the drawings of Paul Sandby, Malton, and others of the last century, Mr. E. Cook and Mr. Billings amongst the few correct of this, are sufficient proofs. In this academy very excellent and accessible lessons were given by Mr. Knight. But this science, accompanied by the essential discipline of the hand in free and ornamental drawing, were admirably taught in the School of Design,—a most precious advantage of recent date in our general education. Anaxagoras had said, that it was questionable whether the supremacy of man was due more to the head than the hand. Handicraft with the workman's tools, and mastery with the pencil, were essential to the architect; indeed there lay his eloquence. Some of the most able architects had passed a year or more at the carpenter's bench. But the literary and poetic faculty was no less to be cultivated; fine thoughts would only come from fine spirits, nurtured by the muses; criticism and the æsthetics would accompany these. Since style in architecture was generally an adoption of former tastes, history was essential; else anomalies and inconsistencies were for ever inditing nonsense verses. The small door, the emblem of the "strait and narrow way," was

applied to the heathen temple, or the proud Templar door (suited to the colossal god within) was mistakenly applied to the Christian Gothic temple. By history we should know that the present cultivated times are most analogous to those of Greece and imperial Rome as respects materials and skill. Since the days of Trajan or Hadrian, no such stones have been used as have recently been employed at the British Museum, where 800 stones from 5 to 9 tons weight form the front. Even St. Paul's contains no approach to these magnitudes; but for cheapness and for taste we love to build with Gothic scantlings of a few pounds weight.

The professor then continued his hints on education, through the architect's office,—the idle talk, detraction, and criticism therein: the student should measure himself with his rivals, for prizes in competition; he should watch the course of business—the war of life—the dangers to reputation by a single failure—the perils of renown and fortune—the eternal antagonism with the world, with the contractor, the workman, the law; the suspicions of the employer—the aspersions of malignity—the intricacy of accounts—the duty of conciliation and benevolence to all men. Great is the experience learned in a good office by the diligent observer. Then travel presents its dangers, in excess of liberty, and forgetfulness of duty and discipline, no less than its immense advantages in free and unbiassed observation of innumerable examples and foreign practice. Finally, the practice of the profession, in every social grade, from the prince to the labourer, offered, to the skill and ability, the perseverance and philosophy, of the architect, the means by which a good man might be made more perfect,—perhaps surpassing any other professional career.

#### ARCHITECTURE OF INDIA. ROYAL INSTITUTE OF BRITISH ARCHITECTS.

An ordinary meeting of the Institute was held on Monday, the 7th, Mr. Bellamy, V. P., in the chair, when various books were presented, and Mr. R. M. Phipson was elected an associate.

With reference to the paper on glass read at the previous meeting, Mr. Papworth mentioned that they were now manufacturing in France plates of glass 20 feet by 12 feet, and 1 inch thick, for partitions.

Mr. Donaldson said that in a leading article in the *Gardeners' Chronicle*, of December 8th, on the "rough plate glass case," which had been referred to, very improper imputations had been cast on the parties who had used blown plate glass, and the witnesses who had confirmed them in their right to do so. He had himself since obtained additional evidence that blown plate was known long before cast plate.

The Chairman said that in "Chambers's Cyclopædia," published nearly 100 years ago, was given the mode of "blowing looking glass plates," and that the priority of the mode was unquestionable.—The Chairman announced that Mr. C. Lee had sent in his resignation as a fellow of the Institute, and that it had been accepted.

Mr. James Fergusson then read a paper on "The Architecture of India," confining himself on this occasion to the south, as he had on a previous occasion to the north, and illustrating his remarks by reference to a fine series of drawings by native artists, placed at his disposal by General Menteith, and the Asiatic Society. Following our notes of what Mr. F. said,—References to the early history of southern India are very scarce. There are no traces of a building earlier than the fifth or sixth century of our era, and few before the tenth or eleventh. The number of the temples in the south is extraordinary, and their size enormous, the outer enclosure being often 1,000 feet square. He knew of a hundred such: in the north there is nothing of the sort. The buildings in the south may be placed under four heads, namely,—

- The *Vimana*, or Temple proper;
- The *Gopura*, or Gateway;
- The *Manṭapa*, or Porch; and
- The *Chaultry*, or Hall.

The *Vimana* is the shrine: it is always square, pyramidal, and has a domical or bulb-



ous termination. The basement is of granite, and contains a cubical apartment (always), the shrine for the god. The upper part is usually of solid brick, plastered with chunam, and although in many cases 1,000 years old, as sharp and perfect as when first erected. The decoration, story above story, is a repetition of miniature shrines, displaying sometimes, on each face of the Vimana, from 500 to 1,000 statues.

The Gopura is always pyramidal, like the Vimana, ten or twelve stories in height, but has a way through it, and invariably a flat top. There is one of these in front of every Vimana.

A Mantapa, generally columnar, is also usually attached to each Vimana. Some of these are of wonderful extent; one is 4,000 feet in length, consisting of a wide middle aisle, so to speak, and two smaller aisles on each side. The middle space is covered by bracketing the stones in a curious manner, the arch being always avoided in Indian architecture where possible.

The Choultry in some cases is of enormous size, having 100 columns in length and 10 in width, or 1,000 columns in all: they are, indeed, popularly called "halls of a thousand columns;" and this is usually literally true. When it is remembered that each of these columns is ornamentally carved from capital to base, that these carvings are usually all different in design, and that the material used is granite, it must be admitted that they are wonderful works.

The inclosures around the temples were added one beyond another, as their reputation increased or money became available. The great hall is usually placed in the third enclosure. Enormous stones were sometimes used: the granite door jambs of one unfinished gateway are 44 feet high.

The principal architectural defect in these groups of buildings is the comparatively small size of the central object, the temple proper: there are numerous enclosures and lofty gateways leading to what seems nothing. At Tanjore and some other places, however, it is not so; the Vimana is the principal object, as it ought to be. As to the supposed connection between Egyptian and Indian architecture, it may be mentioned, without attaching much importance to it, that the temple at Carnae, for example, has the central object low, with several inclosures, one round the other, and has lofty propylæa, or gateways; these Indian temples, too, resemble in arrangement the temple at Jerusalem, as described by Josephus. There is nothing to be gained from these buildings for our own use; it may be mentioned, however, that the art in them becomes more pleasing as they are better understood. Not many years ago, Gothic architecture was considered a mere jumble, without order or regularity; but we now see it differently. The Indian temples show the variety of forms which stone may be made to take. At one time the Roman details were thought the only legitimate forms; then it was found that these were but a debasement of the Greek, and the Greek should alone be copied; and now the Gothic forms alone are imitated. In truth, however, the forms which may be given to stone are myriad-fold. There is one very consolatory impression to be derived from the Indian temples. These were erected by an uncivilized people—without a literature, without a history. But they went to their heads instead of their books, and thought only of the effect that could be produced. We at the present day are so superior to them, said Mr. Fergusson, that if we took the same course we must immensely surpass them.

Mr. Tite said that, after having examined Mr. Catherwood's drawings of buildings in Yucatan and other parts of Mexico, he had endeavoured, with much care, to trace the people philologically, but had failed. He fancied, however, that there was a connection between them and the Indian temples. Notwithstanding the enormous distance which separates them, there is a certain kind of resemblance to the buildings of Java which deserved investigation. Of its connection with Egyptian architecture he thought but little.

Mr. P'Anson thought the Government or the East-India Company should investigate the architectural works of India.

Mr. Fowler reminded the Institute of their possession of a very interesting series of native drawings, illustrative of Indian antiquities, and agreed in the necessity of the Government or the Company preserving records of the buildings.—Mr. Godwin said, with reference to this, that the periodical press in India had become awakened to the importance of preserving and illustrating the architectural monuments of the country, and were pressing it upon the Company.—Mr. Fergusson said something had been done by the Company; but the late wars had checked the operations.

In reply to an inquiry by Mr. Tite, Mr. F. stated that *chunam* is simply burnt oyster shells,—that is, pure lime without any admixture, kneaded with a small quantity of water. It is rubbed when moist, and takes a high polish.—Mr. Wild said the strength of *chunam* depended greatly on the amount of labour bestowed in working it.

Mr. Cockerell was anxious to express his thanks for having been introduced to a new branch of the architectural family, so different from that found in Northern India. With such co-operators as Mr. Fergusson, the Institute records would become a treasury of art of no small value. As to the analogy of styles, it was worth noting that, difficult as it was to connect nations by their language, the architecture of all countries showed that men have always been the same. The Deity had not left himself without a witness. The climate would make some difference in the buildings raised, so would the materials: but the same religious feelings which had led crowds from all parts to Notre Dame of Loreto, was to be traced in the added enclosures of increasing size around the Indian temples described by Mr. Fergusson.

#### FLUVIAL WATERS AND SEWAGE.

Nor many regions of earth are blessed as the British Isles with a bounteous and continuous flow of rills, streams, and rivers, and this privilege is conducive not only to the fertility of the soil, and the beauty of the landscape, but especially to the health of man. It is allowed that no sources of water are so well adapted to the purposes of life as nature seems to have designed from the amplitude of provision; and yet mankind seem hitherto to have paid little attention to the *conservancy* of these vital supplies. To those resident in our genial clime, the value of these advantages are scarcely appreciated, but he who has wandered through "a barren and dry land where no water is," is forcibly struck with the beneficence of Providence in this particular, when he reverts to this cereal soil, and its rivers of living water. In Australia and her boundless tracts of wood and plain, the softness of the clime is of little avail, from the paucity of rivers; and those parts where settlements have been made, are selected from the fact that they are absolved from the unspeakable misery of drought by this first natural postulate for habitation—a river.

From this circumstance, it is clear that the great continent of New Holland never can be a very populous, although it may be a pastoral country, for there rain falls not in quantity sufficient to reserve tanks for the nutriment and accommodation of the cattle and the stranger.

In early ages this country fared well as to its flow of water, but since population has multiplied so exceedingly, the effects of neglect have seriously impaired the purity of our fluvial waters.

It is not twenty years since sea-going vessels sent only up to Vauxhall at ebb tide for sea store; and the Thames water was accounted the best in the world for the purpose.

Now the state of the river renders it hardly eligible at Twickenham. As the community has increased, so have habitations; and the smallest tributary of the Thames is, according to its volume, hardly less vitiated than the great confluent torrent. Along the courses of the Wandel, Mole, Wey, Gode, Loddon, Kennett, Evenrode, Wainrush, Ock, Evesham, and multifarious rills which flow into the Thames, how many factories and mills (fulling, dye, stuff, and others), how many homesteads, farms, mansions, hamlets, villages, and towns discharge their feculencies into their several and separate currents!

All these combining, progress through still larger communities, and from the first to the last no care hath up to this day been taken to preserve for the people the purity of that element which was evidently intended by the Creator to be the healing nutriment of his creatures.

To preserve the quality of the main trunk, it is first necessary to guard the tributary conduits; and this cannot be done without diverting from the natural fall (the course of rivers) all pollutions of what kind soever, nor without enacting municipal laws for the regulation of all sewage and drainage.

So much has been elicited from discussions and treatises originating in the great sanitary movement, that it is not necessary to iterate modes which have been divulged of effectuating so great a benefit; but perhaps it may not be out of place to observe, that as to the great metropolis, a place suggests itself to every reflective mind for its sewage as the one only practicable, without great expense, and that I will try to develop in but few words.

In the first place, it is desirable to retain, and to improve where requisite, the present system of sewers, and, if they do not work well, this is mainly chargeable to the deficiency of water. As the river is the lowest and most natural outlet for the whole reticulation, it will be requisite, in order to preserve those sewers that disemboque into it, to take a lower range; therefore the line of the *main sewer* should be in the bed of the river.

As there are several parts of the town near the river bank (such as Southwark, Pimlico, &c.), 5 or 6 feet below *high-water mark*, it will be requisite to sink the *main conduit* below that level say 10 feet.

For this purpose a main sewer should be constructed of brick and cement from Westminster-bridge on the north side, as far as the "Shades" near London-bridge, to be built intermediate between high and low-water mark; and for this purpose a line of coffer-dams should be struck in to the extent of 200 or 300 yards at one reprise. The tunnel or sewer (which might be erected in an open cutting) being completed, the piles might be drawn, and so on in continuation.

Westward of Westminster the work must be continued by tunnelling past the Houses of Parliament on the north side, and thence westward through the Lots towards Fulham in an open cutting; this would suffice to take all the sullage of these parts. In like manner from London-bridge, and to clear it on the north end, a tunnel should also be continued eastward towards the open spaces at Limehouse, or even Plaistow level, at which point such works as might be requisite for exhausting the sewer, disinfecting and desiccating, should be erected.

Of the value of such works, and the feasibility thereof, enough has been said; therefore it is not necessary to add more than that the smaller expense and greater promptitude of this plan must give it the preference before those of *centripetal tunneling*, which would require the total subversion of all the existing metropolitan sewers.

This main sewer, or cloaca, need not be sunken more than three or four feet below the slime of the river's bed, and into it all the sewers which now discharge their flow into the river should be also graduated beneath the bottom exposed at low water: no interruption could thus be caused to navigation or commerce; but, on the contrary, those foetid, slimy shoals which disgust the passenger might be removed, and a strand remain approachable on the ebb of tide.

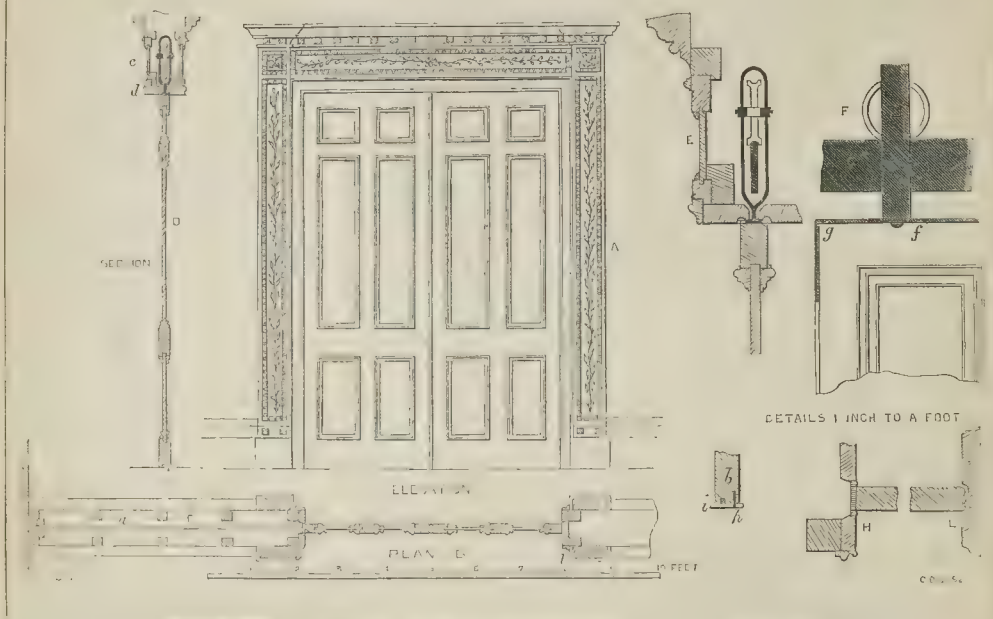
With reference to wharfages, it is obvious that nothing can be more unfavourable than the present state of the river, which is wasteful of great natural facilities, obstructive of traffic, and prejudicial to health.

The level of the main sewer being perhaps 20 feet under that of Thames-street, the portion which passes through densely-populated places must be tunneled: for the rest, the construction might be in an open trench, leading to that locality, near or beyond Limehouse, most available for the attainment of a large area whereon to plant machinery for raising the sullage into a tank or reservoir adequate to the process of disinfection, &c.

On the Surrey side of the river a similar cloaca should be formed to receive the tribute



## DETAILS OF SUSPENDED DOORS.



## A PLAN FOR SUSPENDED DOORS.

of voidance, which could also be conducted to a suitable level near Deptford, so as to be equally efficacious for the expurgation of the river, and the abatement of pestilential effluvia in that Boetia of London.

Nothing is here said of quay walls to our crowded, thrifty, and feculent rivage: the modern taste for architecture and embellishment,—the march through stucco to marble and granite,—will, in its train, induce such improvements; but it must not be omitted to remark, that sewage without flushing can be of little avail, and that until a proper expenditure of clean water be dispensed through the whole reticulation, no design, however perfect, no performance, however complete, can render the abode of millions other than a manor for the intermittent havoc of pestilence.

To expect, from rain-water or Artesian wells, a supply commensurate with the demand for this purpose, would be idle; therefore, the clear, natural, and rightful source is the father of floods—the Thames. At Staines, the water is sufficiently pure for such a supply; it is but 16 miles in a straight line from the metropolis (although above 40 in its course), and, considering the volume at that point, as pure as even the Colne: besides that, save the New River, all supplies are deduced, therefrom within *tidal influence*! Considering that the high road (a straight line from Staines) offers a free and gratuitous course for that supply,—there it would appear to be, of all other points, the most eligible.

With reference to the outcry against water companies (raised not without much reason), it never should be lost sight of that private enterprise is the origin of every great national advantage of our day—railroads, insurances, water works, nay, the East-India directory. Private enterprise is not the tyrant, but the stimulant of competition,—and the centralization of public boards and public works discover nothing very energetic in their progress, nor very beneficial in their result.

QUONDAM.

THE ADMIRALTY'S ENGINEER-IN-CHIEF.  
—A correspondent urges with much force the propriety of appointing a civil engineer in place of a military officer to superintend the contract works and other civil-engineering duties of this office, which is now vacant.

The ordinary method of hanging folding doors with hinges has great inconveniences, for when they are thrown open they appear unsightly, and the loss of the space they take up, in opening and when open, is a great disadvantage. To remedy these defects, various contrivances have from time to time been resorted to; amongst which has been the introduction of sliding or suspended doors.

From the difference of the details, or manner of suspending folding doors, a variety of results have been obtained, some of them not of the most satisfactory kind.

As a practical man, I have had a large amount of experience in suspending doors, and, within the last twelve months, have suspended a door—to represent folding doors—which combines the four qualifications essential to suspended doors:—1st, It prevents the passage of sound and air from dining-room to drawing-room; 2ndly, open or closed, it presents nothing that offends the eye—its appearance is uniform; when open it is invisible, when closed it appears as fixed; 3rdly, it can be taken down, if needed, without removing the plaster, or injuring anything about it; 4thly, it can be drawn out or pushed back with the greatest ease and steadiness.

The principle of suspending doors is not a new one. I lay claim to no new invention, but to the introduction of some new details, which are found to answer with complete success; and with a desire that others may participate in the benefit, I introduce them to the courteous consideration of the readers of *THE BUILDER*.

The elevation A represents the suspended door closed, with pilasters on each side, and surmounted by a cornice; B is the plan of the same; C, on plan, is the place into which the door is run when open; a is an oak fillet nailed on the floor, to act as a guide for the lower part of the door,—in the bottom edge of which is a groove to receive it, as shown on detail b.

Section D shows, at c, a panel which is made to take out, in order to unscrew the plate of sheave at g f, and take out the door. The moulding and part of the head at d is also made to take out,—the piece of quartering above being lifted out by means of a groove-mortice at the left-hand corner, and when down

keeps the head of jamb in its place, as shown at detail E. The moulding and part of jamb at e on plan take down; the quartering behind is fixed, and runs up to the ceiling.

Detail E is a section of brass sheave, iron frame, and bar; F is the elevation of sheave, frame, and corner of door; the plate g f is screwed to the top and side edges of door, and is cut in two at g, at an angle of 45, in order to take off. There are three sheaves to this door,—one at each corner, the other at the centre of the door. G is the iron bar, which is fixed so as to take out if required.

The section b is part of the bottom rail of the door, and shows a groove for the oak fillet a, and a fixed iron tongue h: this tongue moves in the brass bar i, and serves to steady and guide the door, and prevent the passage of air or sound. The brass bar being  $\frac{3}{8}$ ths of an inch thick stands flush with the carpet, when the carpet is doubled and tacked down on each side of it.

H is a section of e on plan. L represents a grooved and moulded jamb, and moulded edge of door,—so that when the door is put back in its place C, the jambs on each side and head appear alike.

C. R. CARTER.

INSTITUTION OF CIVIL ENGINEERS.  
ADDRESS OF NEW PRESIDENT.

On Tuesday, January 8, Mr. William Cubitt in the chair, the proceedings of the evening were commenced by an address from the president, on taking the chair for the first time after his election, in the course of which he noticed some of the principal engineering works which had been terminated, or had made great progress, during the past year, commencing with the tubular bridges across the river Conway and the Menai Straits, which he designated as “pre-eminent for the boldness of the conception, the scientific simplicity of the design, and the difficulty of the execution.”

The advantages which must result from the more general use of wrought iron were alluded to, and it was announced that the commission appointed in 1847 for the purpose of examining into the forms and strengths of iron beams in railway structures, had pronounced the opinion, “that any legislative enactments, with respect



to the forms and proportions of the iron structures employed therein, would be highly inexpedient."

The Harbours of Refuge now constructing at Dover, and in the Channel Islands, by Mr. Walker, at Portland and Holyhead by Mr. Rendel, the docks at Leith and Grimsby also by the latter gentleman, the lighthouses at the Bishop's Rock by Mr. Walker, and at the Skerryvore by Mr. Alan Stevenson, were noticed with great commendation, as most important works, admirably designed and executed.

The railway system of the country was then commented on; and it was stated, that there were now nearly 5,500 miles of railway completed in Great Britain, at a cost of 220,000,000*l.*, derived from private sources, and expended within the realm, encouraging, in a remarkable degree, productive industry of all kinds, and inducing a revolution in all mercantile transactions and social relations.

The example of England was noticed, in boldly abandoning the finest roads, and adopting throughout the length and breadth of the land a network of iron ways, over which, by the aid of steam, passengers and merchandise could be conveyed with a velocity which, at its original proposition, was deemed worse than visionary; which, first filling the Continent with amazement, eventually compelled imitation, and thus would ultimately introduce wants, and consequently civilization, to the most remote corners of the world. "If," continued the President, "this be true, we are naturally led to inquire who were the authors of this great revolution? what minds conceived, and what energies executed these vast projects? The reply, gentlemen, must spring spontaneously from you all—the Civil and Mechanical Engineers have been the great actors in this most interesting chapter of the social history of our country."

The junior members of the profession were then addressed as to the opening now offered for the exhibition of their talents, in the various subjects connected with the sanitary question.

#### CURRENT ARCHITECTURAL COMPETITIONS.

The letters we have received during the last fortnight on the subject of current competitions, would nearly fill our present number. To print them is, therefore, out of the question; nor would any advance be made in the reformation of the management of competitions if we did so. They all tell the same story, again and again, of broken faith and insulting offers, which simple exposure has, up to this time, failed to prevent. We would here further observe, that *anonymous* letters conveying personal imputations, cannot receive from us any attention.

**Leicester Union Workhouse Enlargement.**—On this we have a dozen communications. One known architect, not a competitor, or connected with one, says, that great injustice has been done to unsuccessful competitors by the decision come to by the guardians.

"The first of the 'instructions to architects' runs thus:—'The workhouse to be enlarged so as to provide day-rooms and dormitories for 1,000 inmates, classified, &c., &c. The board-room, with the two ante-rooms and closet adjoining, and the rooms over, *will not require alteration*.' And the fifth thus:—'It is the wish of the guardians that as much of the workhouse shall be retained as is possible.' Yet in the face of these instructions, the guardians, I find, have decided upon adopting a plan for an entirely new building, although they have just paid for two sets of plans, one for an enlargement of the present building, and one for a new building, by another architect. Upon a moderate calculation, seven sheets of drawing-paper, measuring at least 39 inches by 24 inches, would have to be well covered with intricate work in the way of line drawing, tinting, and writing, to illustrate a design in accordance with the instructions, to say nothing of the folios of specification and estimates necessary to explain these seven sheets of laborious drawings; and ten out of the eleven sets of drawings sent in are thrown back upon their authors' hands, not, forsooth, because the alterations and additions are not cleverly devised, but because the guardians choose to

nullify their printed and issued resolutions by adopting a plan in no way in accordance with them."

Another says, "I take for granted that there cannot be two opinions on the conduct of the Board of Guardians, who, after inviting architects to furnish plans in competition for alterations and additions to the present workhouse, allow a plan for an entirely new building to be sent in by a favoured townsman, and adopt that in the face of the instructions to architects, the terms upon which the competition was entered into, and according to which the merits of the plans ought to have been judged."

**Birmingham Institution for the Blind.**—Advertisement was for elevation only,—30*l.* for first, 10*l.* for second. "One of the 32," who have sent in, asserts that the plans were first obtained by specious suggestions to one who applied early for instructions, that if he sent in plans (which he did), competition would probably be avoided.

**Assembly-Room, Newbury.**—Ten pounds are offered for plans and specifications of an assembly-room, not to exceed cost of 1,000*l.*, or not half what ought to be paid for them, if ordered, without risk of rejection. A correspondent complains that when he wrote for information and instructions of what was actually wanted, reply was, "I have none to send you!"

**Independents' Chapel, Gloucester.**—About forty plans were sent in by twenty-nine architects. Design selected in by Mr. Medland, of that city. Concerning this, too, we have complaints, but they are anonymous.

**St. Thomas's Church, Newport.**—The last we heard of this was, that the selection rested between Mr. Johnson and Mr. Daukes; Mr. Stratton, townsman, third; and that Mr. Withers would have been fourth but that the supporters of his design came too late. Correspondents state that the "Committee ordered the number of plans to be reduced by the subscribers (each donor of 5*l.* having a vote) to six, from which one is to be selected by a London architect of celebrity."

#### BRISTOL AND WEST OF ENGLAND ARCHITECTURAL SOCIETY.

In your paper of January 5th, I observe a communication from "B," in which he states that a church, in which many important features are copied from "Brandon's Analysis," has been erected under the auspices of a society which has constituted itself the *arbiter* of the ecclesiastical architecture of the "far west." I presume he alludes to St. Jude's, the last church which was consecrated. I feel bound, therefore, to correct him in his error, which he has so broadly stated, and to assure you that not a single drawing of the above church was laid before the Architectural Society, nor has there been any communication with the society about it, nor have I myself ever seen a drawing or a single stone of it.

What the society did do was to recommend that a different set of plans should be adopted from those which were at first drawn, and that the Middle Pointed, and not the Third Pointed style should be employed: but the plans so altered were never laid before the society.

So much for "B's" facts.

But I think I may be allowed to add, that he seems also to have mistaken the province of an architectural society. The great point which this society aims at is to secure a correct ritual arrangement of the church; and being satisfied that there are no anachronisms or anomalies in the style, &c., of the plans submitted, it is very careful not to interfere with those parts which are merely matters of taste, and which must needs vary according to the talent of the respective architects.

Were the society to alter every window, door-case, moulding, &c., according to its own taste, architects would be mere draughtsmen in their hands; and I think you will agree with me that they would become more servile copyists by this means than by any other; and further, a gross injustice would be done to architects of talent and experience, by putting all men on the same level.

I believe that any architect who has laid plans before this society would bear me out in

stating that, while we are most unflinching in the condemnation of what is *incorrect*, we are most careful to maintain the independence and freedom of the architect in matters which are arbitrary. ECCLES. J. CARTER, Hon. Sec.

#### GREAT SUSPENSION BRIDGE IN RUSSIA.

CONSIDERABLE interest has been excited in St. Petersburg by the model of a suspension bridge across the river Dnieper, at Kieff, one of the principal cities of Russia,—mentioned by us before it was sent from London. Mr. Vignoles is the engineer, from whose designs, and under whose immediate directions, this bridge is now constructing. It has four principal openings, each of 440 feet, and two side openings of 225 feet each, and also a passage of 50 feet on the right shore, spanned by a swivel bridge, opening for the passage of the steamboats and other river craft. The ways through the piers have a clear breadth of 28 feet, and a height of 35 feet to the soffit of the semicircular arches. The platform has nearly 53 feet of extreme breadth, of which 35 feet are exclusively devoted to the carriage-way; the platform is suspended by chains, all on the same horizontal plane, two on each side of the road; the footpaths project beyond the chains, and are carried by cantilevers round the piers exteriorly, so that the foot passengers are completely separated from the horsemen and carriages. The chains are composed of links 12 feet long, and each weighing about 4 cwt.; eight links form the breadth of each chain, and the total length measured along their curves is about four English miles. For the swivel-bridge the iron employed is almost exclusively malleable; the breadth of the platform is nearly 53 feet, and the weight of iron employed scarcely exceeds 100 tons. The bridge is moved horizontally (on the same principle that locomotive engines are sent round on the large turntables at a railway station), and by the efforts of four men only, acting on a very simple apparatus.

The total weight of iron used in the construction of the bridge is about 3,300 tons, including the machinery employed in the various stages of its construction. The whole was made in England. A regular commissariat is attached to the establishment, and the whole organization of service is very complete. Not the least remarkable part of the establishment is that for the manufacture of the hydraulic cement required for the foundations and masonry. It is, in fact, an artificial Pozzolano, made from a peculiar clay found in the Kieff hills, and prepared on the principles laid down by Vicat. The buildings for this purpose are very extensive. Eight large roasting ovens, besides numerous grinding-mills, are in constant action; the quantity manufactured is upwards of 300 bushels (or about 500 cubic feet) in every twenty-four hours. The cost of the bridge, exclusive of the approaches, will be upwards of 420,000*l.*

#### DIRECTORIES.

**The Official and Legal Directory for 1850.**—This is a very handsome volume, perhaps handsomer than necessary, considering it is to last but a year, comprising, with a "Diary," an official, legal, parliamentary, banking, and insurance directory. For the diary, half a large octavo page of writing paper is appropriated to each day. The Directory is capably printed by Vizetelly and Co., by whom also it is published.\*

**Who's Who in 1850**, is a smaller Directory, published by Bailly, Brothers,† referring only to persons of station, and scarcely going so far as its clever title would lead to the anticipation of.

**The Post Magazine Almanac and Court and Parliamentary Register** (a good six-penorth) gives a considerable amount of information on the subject of insurance offices.

**Bogue's Pocket Diary and Calendar**, has a line for the engagement of the day, and two blank leaves after each monthly division for memoranda unconnected with dates.

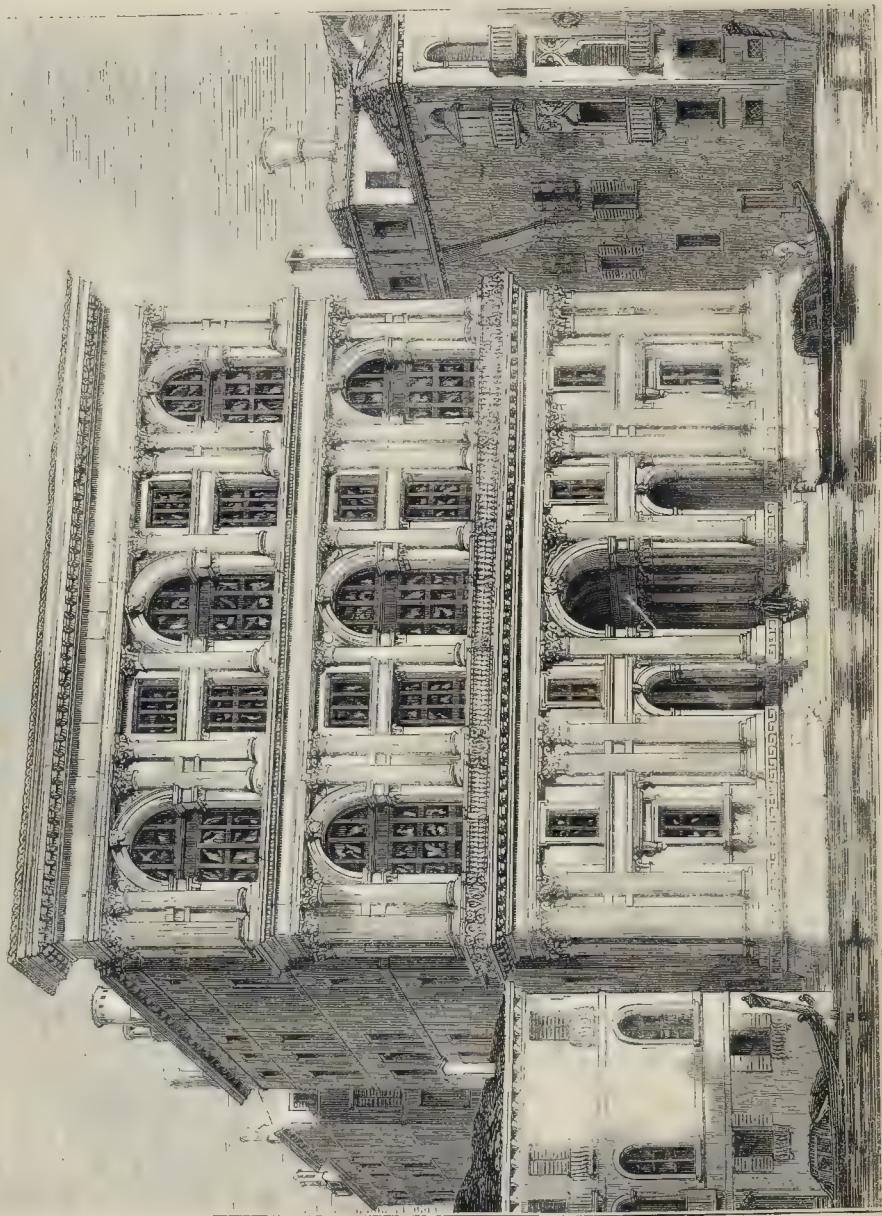
\* Peterborough-court, Fleet-street.

† Royal Exchange-buildings, Cornhill.



## THE GRIMANI PALACE, VENICE.

[15TH CENTURY]



## PALAZZO GRIMANI, VENICE.

THE engraving represents the front of this palace towards the grand canal; it is situated near the Ponte Rialto, and is one of the series of colossal structures which makes that canal the finest highway in the world. This pile was commenced by Girolamo Grimaldi, from the design of Michele Sanmicheli,—but only the lower story was executed by him, the upper stories being completed (probably after his death) by some other architect unknown.

This will account for the marked difference which is evident in the design of the upper and lower parts of this front; at the same time it may afford a clue to the date of its erection, Sanmicheli having died in 1549. The date thus fixed for this building receives some confirmation from the historical fact that Marino, son of the above-named Girolamo, was made Doge in 1596. The length of this front is about 88 feet; and the height, from the water line to the top of the main cornice, about 95 feet.

C. F.

## ARCHITECTURAL NOMENCLATURE.

THE altering of terms which have been generally adopted is attended with so much inconvenience that it is almost better to put up with objectionable ones than to attempt to introduce others that would be more appropriate. Nevertheless, the term "Decorated," now applied to one style or period of our Gothic architecture, is so exceedingly irrelevant and incongruous that it is surely desirable to have some other substituted for it. In the first place, it is exceedingly unmeaning, being expressive rather of *circumstance* than of *quality*. Decoration, or what is meant for such, enters



into every style of architecture; therefore, to call any one particular style "Decorated," and more especially when many examples of it are more remarkable for plainness than ornamentation, partakes of absurdity. We may apply the epithet "Decorated" to a building but not to a style; the suitable name for it is not *decorated*, but *decorative*, since that would be far more in accordance with the analogy of language. If the term *Decorated* is to be bestowed by way of pre-eminence on any one distinct mode of Gothic, that which we call "Perpendicular" has surely the greatest claim to it; and, in fact, the latter is sometimes called *Florid Gothic*. The term "Perpendicular" itself is not a very satisfactory one, still it is far less objectionable than that of "Decorated;" because it does really express one marked characteristic of the mode to which it is applied.

Analogy is not at all attended to in the names at present employed for the three leading divisions or classes of our national Gothic. For, if we call the first of them "Early English," without extending the epithet expressive of nationality to the two other styles, the "Early" alone would be quite sufficient. Surely, then, it would be in every respect better, as we call the first of the three periods into which Gothic is divided, "Early English," to distinguish next as "Middle English," or our second style of "Gothic;" and the third, as "Late English," or perpendicular English; in like manner as French antiquaries divide their *Style Ogival* into *primitif, secondaire, and tertiaire*. While such change of names would be an exceedingly slight one, it would be attended with positive convenience by getting rid of a misnomer, which is now a stumbling-block to the uninitiated, and perplexes even those who know what is meant by it. Not a little puzzling is it to persons in general to be told that what, perhaps, looks to them a very plain building, is in the "Decorated" style, and that such profusely adorned piles as Henry the Seventh's chapel, and the new palace of Westminster are *not*. They cannot make it out at all, and no wonder; for it is like telling them that black is white and white is black.

ZETA.

## RAILWAY JOTTINGS.

THE Newport station for the South Wales line has just been commenced at the High-street. Messrs. Hughes and Co., builders of the stations on the Chester and Holyhead line, have taken the contract for erecting the Newport, Cardiff, Cowbridge, and Swansea stations.—The "calls" payable during January, 1850, so far as advertised, amount to 1,734,279*l.* against 3,926,342*l.* in 1849; 4,860,220*l.* in 1848; and 6,157,823*l.* in 1847. The total calls during the year amount to about 20,000,000*l.* of which 18,000,000*l.* are for English, Irish, and Scotch, and 2,000,000*l.* for foreign, subscribed for in England. The calls in 1848 were 33,000,000*l.*; in 1847, 42,000,000*l.* Vast as such sums of money are, however, any one of them constitutes but a trifle in comparison with the whole amount expended on 5,950 miles of railway, old and new, already formed, namely, almost two hundred millions sterling (more precisely in fact, 197,000,000*l.*). The average cost per mile has been 33,110*l.* From some interesting calculations in the *Times*, it appears that this average cost has varied considerably, and that it has by no means been on the decrease lately. In 1842 the cost of the railways in operation averaged 34,690*l.* per mile; in 1843, 36,360*l.*; in 1844, 35,670*l.*; in 1845, 35,070*l.*; in 1846, 31,860*l.*; in 1847, 31,700*l.* in 1848, 34,234*l.*; and, in 1849, 35,214*l.* The amount of gross traffic receipts on all this truly "valuable property" is another interesting point in the general statistics of the railway kingdom. In the British *imperium in imperio* alone, the annual revenue thus derived from her Majesty's lieges amounted, in the year just closed, in all, to eleven million, six hundred and eighty-three thousand, eight hundred pounds sterling!—reaped in return for the certainly noble privilege of flying to and fro, with winged speed, over all the length and breadth of the land, interlaced by five thousand nine hundred and fifty miles of hill-levelled, valley-filled, and

straight and narrow way across flood, and through mountain, and over abyss.—A correspondent of a metropolitan paper, in speaking of the supply of milk by rail to London, with a gravity and wisdom worthy of that ingenious "writer and decorative painter," who invented "painted tablets and numbers," for the special use of railway companies, "with extraordinary tact, so as to give great energy to this present enterprising and inventive crisis,"—triumphantly asks the blind plodders who may happen to peruse the prologue to his project—"Why should not the railway Companies lay down pipes from the adjacent highland grazing districts, Harrow, Brentwood, Richmond, &c., where the height is favourable, and allow the milk fresh from the dairies to flow by gravity from cisterns, eligibly placed for collecting the milk from the various farmers, and be drawn off at the metropolitan termini for retail supply?"

## NOTES IN THE PROVINCES.

MR. H. ROGERS, of Wolverhampton, has offered 2,000*l.* towards the endowment of a church on Wednesfield Heath, and the late patron, Mr. J. M. Paget, has given a site for church, parsonage, and schools. Close by, Mr. Rogers is already building a row of almshouses.—At Ryde, where gas is charged 10*s.* per 1,000 cubic feet, besides 6*s.* a year on meter said to cost but 3*s.*, a movement is being originated, on an example set at Fareham, for the attainment of some redress in shape of a reduction in price.—It is intended, we hear, to take down and rebuild Wimborne Minster chancel.—A site for new schools for Wicker parish, Sheffield, has been purchased for 1,200*l.* The buildings are to cost 1,300*l.* more, and to accommodate 600 children. 1,600*l.* are already raised. It is also intended to build a new hotel at Sheffield, at a probable cost of 10,000*l.* A committee has been appointed to obtain plans and estimates, obtain a site, &c. In the same town, according to the local *Times*, preparations have been made for the erection of a new post-office fronting the market-place. Messrs. Weightman and Hadfield are the architects, and the contractor is Mr. William Clarendon, builder, Portobello.—The additional dock at West Hamlepool has been contracted for by Mr. Hutchison.—The opening meeting of the Chester Architectural Society was held on Monday week, the Bishop of the diocese in the chair.—On Tuesday week the first stone of St. Mary's Church, Gomersal, was laid, with the customary ceremonial.—There are in prosperous operation in Edinburgh three model lodging-houses (one of which is solely for females), having altogether 63 bedrooms, 124 beds, and accommodation for 219 lodgers. They have been quite free from fever and contagious diseases.—It has been resolved to raise, by small subscriptions, a sum (3,000*l.* according to a Dublin correspondent of the *Athenaeum*) to be devoted to the restoration of the great south wall of the nave, and east wall of the choir of St. Patrick's Cathedral.

## COVENT GARDEN CHURCHYARD.

## PROTECTION OF GRAVES.

Your correspondent, "Joseph Rutherford," asks, "Whether there is any protection afforded for the remains of those buried in consecrated ground?" He does not state that the remains of his family, who have been buried in the Covent Garden Churchyard, have been disturbed, nor that gravestones were erected to their memory; but, assuming that such is the case, I will shortly state what the law is when gravestones or other monuments erected to the memory of the dead are removed, without the sanction of some Act of Parliament or of the family of the deceased.

During the lifetime of the person who erected the gravestone, he may sue those who removed it in an action. After the death of that person, the tombstone is like an heirloom, and descends to the heir of the corpse buried under it, who may, in like manner, bring an action for the removal of the monument of his deceased ancestor. (See "Corven's" case, 12 Rep. 105, Co. Lit. 18, b.; "Spooner v. Brewster," 3 Bing. 136.) I am not aware of any authority showing that

the actual remains of the dead, so long as they can be traced, are the property of the heir; but where the remains are identified by a tombstone, no one can interfere with that monument, so long as an heir remains, without incurring the same consequences as would follow from his unlawful interference with your correspondent's property or person. And as the remains of the dead can seldom be disturbed without at the same time disturbing the headstone which marks their resting-place, the law does in this instance afford some remedy for the insult of which he naturally complains.

A SPECIAL PLEADER.

Temple.

## EXCAVATORS' ESTIMATES.

THE following tenders for excavating and other works on an estate north side of Grove-road, Upper Holloway, will interest some of your readers. The works to be done are:—

Digging from excavations, and carting same, to form new roads and pathways, 5,500 cubic yards.

New roads and pathways to be formed 40 feet in width, and raised to an average height of 18 inches above present surface, 2,460 feet run.

New roads and pathways to be formed upon site of new excavation, the top of pathways to be raised 10 inches above the same, 2,050 feet run.

Fencing, implements, lighting, watching, notices, filling in ditches, excavations, &c., 103*l.* 10*s.*

Skitterall .....	£531	14	0
Brown and Son .....	349	12	11
Hilton .....	280	0	0
Green .....	260	0	0
Reddin .....	234	0	0
Jarvis .....	231	5	0
Whiteman .....	228	6	8
Berk .....	215	15	7
Perkins .....	206	0	0
Sinnott .....	198	0	0
Prat .....	196	0	0
Drummond .....	187	0	0
Yeoman .....	177	0	0
Salter .....	172	10	0
Kendle and Smith .....	159	0	0
Smith and Kendle .....	126	0	0
Gregson .....	115	0	0
Bake and Brown .....	105	0	0
Payne (accepted) .....	103	10	0

Difference between the highest and lowest (only) 428*l.* 1*s.* J.

## A THEORY OF DWELLINGS.

THE following "theory of dwellings," from a clever article on "Human Progress," in the late number of the *Westminster Review*, is very suggestive, and is in a road we have often trodden.

"Shelter from the 'skye influences' is the first consideration—in other words—a roof; a huge umbrella-covering, on walls inclosing sufficiently large space, and this space should be gravel soil—the soil nature has provided for man to dwell on, and not for vegetables to thrive on, other than those that gladden the sight of man. The materials for constructing a roof were 'some time a problem, but now the time gives them proof,' since Robert Peel abolished the duty on glass, and set man's brain free to work on nature's materials, before reserved as a costly luxury for the wealthy. Four external walls, then, of sufficient height and thickness, and constructed with large hollow bricks, should be covered in with a roof of rough-surfaced glass, of greenish tinge, and of sufficient thickness to defy the hailstone. The roof structure should be of wrought-iron, on the tension principle, and divided into as many spaces as may be desirable, supported on stone or cast-iron columns. Portions of the glass might be left bright, for the sun's rays to enter; other portions coloured, for artistic effect. The glass should be inserted in the roof in large sheets, with elastic packing round the edges. The greater the number of the floors there can be, the better, as height above the earth's surface is always favourable to health, rising above the vapour exhalation line. But, of course, there must be a certain propor-

\* The new number of the *Review* contains an article on "Epidemics," and one on "Railway Progress," deserving consideration.



tion of width to height. If we assume six ranges of apartments eight feet high each—supposed for working men and families, then the area within the internal walls should not be less than one hundred feet. The floors should be double, of sawn slate, with air spaces between, and supported on iron girders. The partitions and staircases also should be of sawn slate. The apartments should all be against the external walls, with the windows opening outwards, and the doors opening on inner galleries. The ground-floor rooms should be apportioned to a dining and coffee-room, a library and lecture-room, and a kitchen. The central portion, to the height of the first floor, should be covered in with glass pavement, and applied to hot and cold baths, and wash-houses,—the cellars beneath, to the storage of provisions and fuel. The upper story should be the nursery for children, and the school-rooms. The intermediate ranges of apartments would be sitting-rooms and bed-rooms. On the north side of the building, external to the kitchen, should be a building containing a steam-engine and well, and small gas-works, with a lofty chimney running above it close to the external wall. The waste heat from the gas-works would serve to heat economically the engine boiler, and to prepare heated air to warm the building generally in the galleries and halls, and particularly in the private rooms, being in the hollows of the floors at all times, and admitted into, or excluded from the apartments, at the pleasure of the inhabitants. Each bedroom and sitting-room would be provided with a closet, dust-shoot, and sink; and some of them would be arranged to throw three or four more apartments in groups at pleasure. The use of the engine would be, to grind and chop for the kitchen, to clean boots and shoes with circular brushes on a shaft, to clean knives and forks by the same process, to pump up hot and cold water into all the apartments, to furnish steam for the drying-closets and cooking, and cleansing earthenware and utensils, and keep going a rising and falling lift to the upper stories, to save the labour of mounting stairs. Westward and southward of the building should be laid out a garden and pleasure-ground, kept cultivated by the manure and refuse, chemically treated, to neutralize the gases. The garden would furnish plants to place in the interior of the building, to consume any vitiated air that might escape the ventilating processes. Open fire-places might be placed in the apartments of the ground floor, and gas stoves in the others.

These arrangements would suit the solitary as well as the gregariously disposed. The gas and hot water arrangements would serve for all the processes of private cookery, and the public kitchen would supply food for single men or families, to whom household drudgery were a nuisance.

The furniture should be chiefly metallic, to prevent risk of fire, and of forms simple, yet graceful. The beds should be spring mattresses or water beds. It is not generally understood that the object of a soft bed is chiefly to fit the body, to prevent undue strain on any portion of the bones or muscles. Feather beds do not well attain this object, because the feathers not being pliant or moveable, are consequently compressed. The water bed obviates this, and produces equal pressure. Could the body be laid in a plaster cast exactly fitting it, there would be no sensation of hardness. Plaster casts and prints, multiplied by mechanical art, should abound. The large halls, and dining and lecture-rooms, might be furnished with statues and paintings, if they could be afforded. But all should wear a severe simplicity, though the eye should never rest on an ugly or ungraceful object.

It may be objected that this mode of living would not suit the tastes of English people, who consider "every man's house his castle," and prefer model cottages to model lodging-houses. This idea, we believe, has chiefly arisen from the distaste consequent on inconvenient and miserable lodging-houses. But there is no reason why this system should not combine all the advantages of the clubs with all the privacy of domestic life, free from its drudgery. It is certain that, upon this system, the maximum of comfort, with the minimum of labour, may be realized; and it is only by the congregation of individuals that high civil-

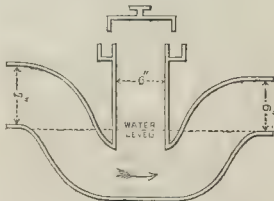
ization can be attained. Let us consider the advantages.

First, the most thorough and absolute independence of all personal attendance. In such a dwelling a man might conveniently obtain all that he would require for personal use, as simply as he could buy goods in a shop. There could be no dirt, with hard slate surfaces for floors and walls. His hot and cold water, and gas, all arranged to his hand, and with the means of getting rid of waste water,—with couch and furniture so simple as almost to be self-arranging,—and with ready access to food at any time he might require it,—he would need no personal attendance, save in case of illness. He might go in and out at his own pleasure, without trouble to himself or others. Advantageous as all this would be to individual men, infinitely greater would be the advantages to families. A large assemblage of people could maintain their own physician on the establishment,—could engage their own lecturers and school teachers,—could have a public nursery,—could tend the sick,—could have their own gymnastic grounds,—in short, all the appliances which are now the exclusive privileges of the wealthy. In such an establishment the natural aptitudes of children would be developed profitably to the community; and painful misfits, rendering so many intelligent persons a nuisance to their friends and the community, would be avoided. Social intercourse would be attainable without its present disadvantages, and the members of such a community would grow up attached to each other."

#### ACCESS TO DRAIN TRAPS.

The attention that has recently been given to the best mode and materials for forming drains, has led to a very extended use of the 6-inch glazed stone-ware pipes, than which nothing appears better adapted for the purpose, as combining efficiency with economy. In the application of these pipes as house drains in connection with the public sewers, it becomes necessary to adopt some form of trapping, to prevent the foul air of the sewers being conveyed into the houses, as well as the passage of rats in the same direction. There are now two or three modes in use for this purpose.

The old form of brick cesspool with a dipstone is expensive, occupies much space, and is troublesome to cleanse when choked up. A pipe of stoneware, curved downwards, sufficient to trap the passage, is economical and efficient so long as the way keeps clear, but when gritty or other heavy matter fills up the bend, it becomes necessary to take up probably a considerable length of pipes, beginning at one end, in order to clear the obstruction. It has been attempted to meet these objections by a form of pipe now much in use for the end-pipe at the out-fall to the sewer, the extreme end forming an oblique angle, with a disc of iron suspended from above, so as to close the pipe, unless forced open by the pressure of fluid in its course to the sewer. This arrangement is simple enough; but should fragments of paper, sticks, or other matter lodge on the edge of the pipe or disc, the closing is incomplete, and foul air will pass.



I beg to suggest a form of trap which will meet all requirements. The accompanying diagram shows a section. It should be made of stoneware, as are the pipes, and it may be socketed to them in any part of their course where most convenient of access, for opening the cover when requiring to be cleared of deposit. The lid for closing the opening through which the trap may be cleansed is here shown raised from its seat; the socket,

or groove into which it drops, should be filled with sand, putty, or other suitable material for preventing the escape of air, so that it may be easily removed and readily renewed.

If a small flap or trap-door be formed in the part of the flooring covering the drain, immediately over the lid of the drain-trap, ready access may be obtained to the trap for periodical examination of its efficiency, and cleansing, if necessary.

J. L.

#### Miscellaneous.

**THE CHURCH AT KING'S WORTHY**, near Winchester, was re-opened for divine service on the Sunday before last, after being closed for some time for the purpose of enlargement and repairs. A new aisle has been added on the south of the nave, the whitewash has been scraped off the walls, the whole of the huge, unsightly pewing has been replaced with lower pewing, the windows re-glazed (the east one with stained glass), the stonework restored and cleaned, the large unsightly gallery which projected far into the church has been removed, thereby disclosing the tower arch and window. The font has been removed from the east-end of the nave to the west, and the pulpit has been re-constructed. The whole of the roofs have been re-tiled, the north wall has been rebuilt, and two new windows inserted. On pulling down the old north wall of the nave, which was several inches out of the perpendicular, the workmen disclosed a large recess at the east end (the north-east angle of the nave), reducing the wall in that part to a few inches in thickness, fully accounting for the expansion of the chancel arch, and it appeared that this recess had once contained the staircase to the roof-loft. Mr. John Colson was the architect, and Mr. Vokes the builder employed.

**EXHIBITION OF THE WORKS OF INDUSTRY OF ALL NATIONS.**—Her Majesty has appointed Prince Albert, the Duke of Buccleuch, Earl of Rosse, Earl Granville, Earl of Ellesmere, Lord Stanley, Lord John Russell, Sir Robert Peel, Mr. Henry Labouchere, Mr. Gladstone, the Chairman of the Court of Directors of the East-India Company for the time being, Sir Richard Westmacott, the President of the Geological Society for the time being, Mr. Thomas Baring, Mr. C. Barry, Mr. Thomas Bazley, Mr. Richard Cobden, the President of the Institution of Civil Engineers for the time being, Mr. Eastlake, Mr. T. F. Gibson, Mr. John Gott, Mr. Samuel Jones Loyd, Mr. Philip Pusey, and Mr. William Thompson, "to make full and diligent inquiry,—into the best mode by which the production of our colonies and of foreign countries may be introduced into our kingdom; as respects the most suitable site for the said exhibition; the general conduct of the said exhibition; and also into the best mode of determining the nature of the prizes, and of securing the most impartial distribution of them." Mr. John Scott Russell and Mr. Stafford Northcote to be joint secretaries. Mr. Henry Cole, Mr. C. W. Dilke, Mr. G. Drew, Mr. F. Fuller, and Mr. Robert Stephenson to be the executive committee; and Mr. Digby Wyatt their secretary. It appears strange that the president of the *Institute of Architects*, for the time being, is not in the list as well as the president of the *Institution of Engineers*.

**SOMERSET ARCHEOLOGICAL SOCIETY.**—The first quarterly general meeting of this society, was held on 2nd inst., when the Rev. F. B. Portman, who was in the chair, delivered an opening address to the members. Papers were then read on the study of natural history, by the Rev. W. R. Crotch, Dr. Woodforde, Mr. W. D. Crotch, and Rev. C. P. Parish. At the evening meeting also, papers were read,—by the Rev. F. Warre, on the British Town, at Norton Fitzwarren; by Mr. R. Walter, on the Roman remains at Combe St. Nicholas; and by Mr. C. E. Giles, on Norman architecture.

**GUTTA PERCHA IN FLOORS.**—I observed in your publication a suggestion that gaping floors of rooms might be well filled up with gutta percha. Is not this material, however, of a highly inflammable nature, and might not that property render its use in the manner suggested rather inconvenient?—X. Y. Z.

\* Gutta percha, when inflamed, burns like a pitchy resinous wood, and would certainly not conduce to make a house fire-proof.











# The Builder.

No. CCCLXIII.

SATURDAY, JANUARY 19, 1850.

**A**NCIENT sepulchral slabs and crosses have recently received much attention. One of the most recent works on the subject is that by the Rev. Edward L. Cutts, B.A.,—one of the "Archæological Manuals," published under the sanction of the Archæological Institute,\* and forming the first portion of the subject of "Monumental Antiquities." The number which remain of these slabs and crosses may be judged of from the author's remark, that 1,000 of them have come under his own notice. In his work he gives drawings of many, and divides them into the three classes:—1. *Incised Cross Slabs*, 2. *Raised Cross Slabs*, and 3. *Head Crosses*.

In the course of his introductory remarks, Mr. Cutts notices the circumstance, which is not without a lesson, that in Sussex, where iron foundries existed from an early period, *cast-iron coffin-slabs* occur. There is an example at Burwash, Sussex, with a small cross and inscription, "ORATE PRO ANIMA JOHNE COLINS." A kindred example of later date exists at Crowhurst, Surrey, which bears a figure in shroud (Anne Forster), kneeling children, shields, and inscription, date A.D. 1591. An example with inscription only exists at Cowden, Kent.

The variety of designs made from the cross, or from the combination of the cross and circle (which latter may be intended for a nimbus), is quite extraordinary, and shows the invention of the mediæval artists: actual repetition is very rare, though the modifications are in many instances very slight. "It may be sometimes rather difficult for an unpractised eye at once to see the cross in some of the complicated designs, but the idea of the cross seems to have been so ever present in the minds of the mediæval Christians, that they at once caught at anything which formed even a remote resemblance to the emblem of our faith. In two intersecting roads they saw the cross, and chose these *cross roads* as places peculiarly suitable for the erection of their village and station crosses: the soldier stuck his sword upright in the earth, and its hilt formed the cross before which he prayed."

In the fourteenth century the cross is sometimes composed of leaves and branches of the vine: the lilies, commonly used in the fifteenth and sixteenth centuries as terminations, were probably in allusion to the Virgin Mary.

Amongst the symbols inscribed on ancient gravestones, many are personal and indicate the rank and profession of the deceased. The crozier is the symbol of an archbishop; the mitre and pastoral staff refer both to bishops and mitred abbots; the chalice, so often observable, is the symbol of an ecclesiastic; the paten and chalice often occur together, as do the chalice and book (of the Gospels), and the chalice and cruet, perhaps that in which the baptismal chrism was kept. A shield or a sword may stand for a knight; the knife may

be the symbol of the official "kerver" in some great family, and the knife and dredging-box appear on the slab over Cannynge's cook, buried in Redcliffe Church, Bristol. Shears may stand for a clothier, although they were sometimes used to designate a female.

To determine the date of gravestones is not at all times easy,—they do not present the same marked characteristics of certain periods as are found in buildings; the form of the cross, the accidental ornaments, the inscription, if any, must all be looked to for assistance in the inquiry. "From c. A.D. 1000, till about A.D. 1350, a kind of Roman character called Lombardic was commonly used. The latest instance we meet with of Lombardic (says Gough, vol. iii. p. cxxlvi.) is on the tomb of Robert de Bures, Acton, A.D. 1361. The character called black letter seems to have been introduced c. A.D. 1350: it is used on the tomb of Edward III., who died A.D. 1377; and from this period it was in common use until c. A.D. 1530. About this time a debased kind of Lombardic became very fashionable, and gradually changed until about the middle of the sixteenth century, when it became the common Roman character.

Moreover from c. 1100 to c. A.D. 1360, the inscription, though often in Latin, was more frequently in Norman French, and generally in rhyme. From c. A.D. 1400 downwards, Latin became the common language for inscriptions, though English ones are not uncommon after c. A.D. 1500."

The inscriptions had little variety; nearly all of the same age followed one conventional form. Thus from the year 600 to 1000, the inscription seems to have been—"Pray for the soul of —." In the thirteenth and early part of the fourteenth century,—*"SIRE—GIST ICI DEU DE SA ALME EST MERCI."*

"From the middle of the fourteenth to the latter part of the fifteenth century, the conventional form appears to have been, *"Ric jaret Dns —cujus anime propicietur Deus. Amen."*

A not uncommon addition in this period is, *"Jesu merri, Radie help."* Sometimes it is the sole inscription.

Towards the close of the fifteenth century, longer inscriptions began to grow common; and in the succeeding centuries, such a mode was adopted that one might naturally ask with the little girl who had looked round a churchyard, "Pray, mamma, where are the naughty people buried?" and to "lie like an epitaph," became a mode of comparison. Many epitaphs of the eighteenth and nineteenth centuries, as we have often had occasion to say, are positively blasphemous.

We are enabled to give some examples of the excellent engravings, by which the work before us is illustrated.\* Fig. 1 is a Norman headstone (of the twelfth century), from Temple Bruer, Lincolnshire; and Fig. 2, one of later date from the churchyard of St. Mary Le Wigford, Lincoln, probably of thirteenth century: this is an interesting specimen.

Fig. 3 is a beautiful Early English slab (thirteenth century), from Great Milton, Oxfordshire; and fig. 4, probably early in fourteenth century, is from Barnwell, Northamptonshire: the scale is 1 inch to a foot. The incised lines connecting the upper and lower parts of this design are very singular.

We have often pointed out that the finest carved works in our mediæval buildings are studies

from nature, and have urged on our designers that to *natural forms geometrically disposed*, they must look for new inspirations. The crosses to which we have just now alluded afford other instances of the same fact. Mr. Pugin, we observe, has adopted the same doctrine, and his new work, "*Floriated Ornament*," is an exposition of what he was himself able to do in this way. The great point is to lead designers back to first principles:—"as by repeated copying the spirit of the original work is liable to be lost, so in decoration the constant reproduction of old patterns, without reference to the natural type from which they were composed, leads to debased forms and spiritless outline, and in the end to a mere caricature of a beautiful original. It is impossible to improve on the works of God; and the natural outlines of leaves, flowers, &c., must be more perfect and beautiful than any invention of man."

Returning to Sepulchral Memorials, we may here mention a second work on the same subject now in course of publication, namely, "*Christian Monuments in England and Wales; an Historical and Descriptive Sketch of the various classes of Sepulchral Monuments which have been in use in this Country from about the era of the Norman Conquest*," by the Rev. Charles Boutell, M.A.\* Mr. Boutell and Mr. Cutts tread the same ground to a considerable extent, and give the same illustrations; the work of the former, however, is to take a wider range than that of Mr. Cutts, as it is to include monumental effigies, semi-effigial monuments, altar tombs, and canopies. As a specimen of the writer's style, we will quote his notice of the materials used in the construction of monuments:—

"The materials of which the mediæval monuments were for the most part constructed, were—

"I. Marble or Stone; comprising purbeck and forest marble, alabaster, various kinds of sandstone, &c. Monumental coffins and slabs, altar-tombs, canopies, and effigies, were commonly formed altogether of marble or stone.

"II. Wood; generally oak or chestnut. The upper parts of altar-tombs were sometimes made of wood, as in the monument of William de Valence, in Westminster Abbey: wood was also occasionally used for the construction of canopies, and even of effigies.

"III. A mixed metal denominated Latten, but now generally known as brass. Effigies, in full relief, were occasionally executed in this metal; also the small effigies or weepers, which were placed in niches about the sides of many of the more important altar-tombs. Plates of this metal were laid upon altar-tombs to support recumbent effigies. Narrow and long plates, or fillets, were also fixed in hollows, abated or sunk for their reception in the uppermost group of the mouldings of these tombs. These fillets bore inscriptions and were set chamfer-wise—on a slope that is—with the adjoining mouldings. But the most common use of the latten metal was in plates, which were engraven with effigies and various other designs, and, being affixed to slabs of stone, were laid in the pavement of churches, or, in some cases, were placed on altar-tombs. Monuments of this class are known as brasses.

In the decoration of the more costly and elaborate monuments, enamel was not unfrequently introduced: gilding and colour were also used for the same purpose, and with a lavish hand. Now these gorgeous accessories for the most part have disappeared, leaving, as tokens of their former existence, but here and there some lingering remains. There is one other mode of decoration employed by the mediæval artists for monumental purposes, which requires to be noticed; this is the use of a composition spread upon the marble or stone, in which any minute elaboration of details might be expressed, in place of the more tedious process

\* "A Manual for the Study of the Sepulchral Slabs and Crosses of the Middle Ages." J. H. Parker, London and Oxford.

\* Some of the references, we must here remark, appear defective, and should be revised: thus the border in plate xxxix. is pointed out as of the thirteenth century (p. 55), while the plate itself is headed twelfth century. Further, reference is in one place made to illustrations by numbers, which do not appear on the plates.

\* Published by G. Bell, Fleet-street. Parts I. and II. Two more to follow.



## ANCIENT SEPULCHRAL MEMORIALS.

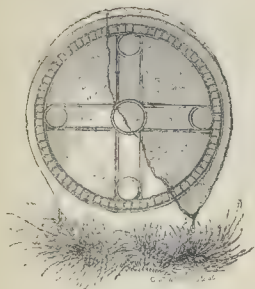


Fig. 1.

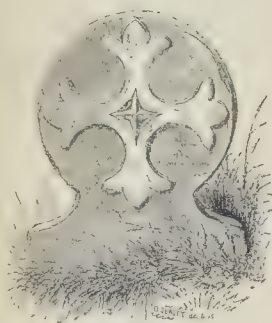


Fig. 2.



Fig. 3.

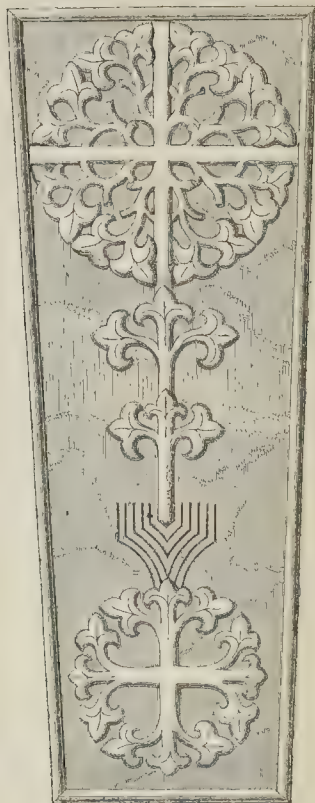


Fig. 4.

of carving in marble or stone itself. In flat slabs, also, upon which the desired device was incised or engraved in outline, the lines were filled in with some tenacious substance, which would at the same time render the lines of the composition more distinct, and would tend to their preservation from injury. The incised lines in brasses appear to have been originally subjected to a similar process."

The fourth and fifth parts of Messrs. Bowman and Crowther's "Churches of the Middle Ages," are published,\* and fully support our very favourable impression of the work. The churches illustrated are St. Mary's, Temple Balsall, Warwickshire, and St. Andrew's, Heckington, Lincolnshire; and the plates comprise, of the first,—a perspective view; ground plan; south priests' door and west ditto; west elevation; south elevation; south and north doorways, and details of buttresses. And of the second,—west elevation; plan of spire, and section of parapet of tower; details of spire; south window, south transept; priests' and sacristy doorways; tracery of chancel windows, and details of parapet. As a text-book, this work will be found of the greatest value. The perspective view is the least satisfactory in the fourth part, and the *writing* to the details might still be clearer, though an improvement on that in the first parts.

\* By the authors, at Manchester.

#### PROFESSOR COCKERELL'S LECTURES ON ARCHITECTURE, AT THE ROYAL ACADEMY.

In the second lecture, on January 10th, the professor urged reliance rather upon the acquired than the natural qualifications of the students: the pretension to genius was a common and very natural error, which all the writers on fine arts were for ever reproving. Sir J. Reynolds had laboured to show that the better parts of genius were good sense and industry. Horace and Pope were equally earnest on this point ("Ars Poetica," and "Epistle to Lord Burlington")—

"Something there is more needful than expense,  
And something previous e'en to taste—'tis sense.  
Good sense, which only is the gift of heaven,  
And though no science, fairly worth the seven."

By consulting good sense, the plain law of gravitation in sound building, we shall avoid a crowd of misplaced inventions and futile efforts at taste. If (as a vulgar instance) we raise upon the glass front of a shop the glories of Jupiter Stator, or the magnificence of San Sovino, our labour is but vain; and however safe and sufficient by its concealed supports, we experience the apprehension which the sleeping boy, Robert Houdin, gives to the bewildered spectator while suspended in the air. Far superior is the continental system of shop fronts, adopted by Mr. Penne-thorne in New Oxford-street, in which all is natural and well-founded; namely, by the bold arch supporting the superstructure, while the first floor is suspended on the impost, and the shop front is relieved of all super-incumbent weight. But this rigour was not

demanding in decorations, painted or in relief, as in Genoa and Florence. Fancy might there have license, and we could endure Robert Houdin, or a Pandemonium upon clouds, while simply attempted in pictorial art. The street fronts of London were a scandal with the foreign architects; massive and columnar architecture supported upon bodkins and glass windows, was justly ridiculed by them. He cited these as outrageous examples of this gross departure from the simple laws of building. Of course, the observance of these laws in good architecture would be familiar to the students in many examples, as well as the irredeemable departure from them.

But he strongly recommended their exercise of the logic of the art in their habitual criticism, rather than its rhetoric, and to allow to strength and reason all the influence which was due to so eminently practical an art as architecture. He had recalled the attention of students to the unadorned precepts of Vitruvius, because he must ever esteem them sound and well founded, especially in these times, when a fanciful amateur dilettanteism was assuming a dangerous authority. We were greatly obliged to eloquent scholars who had expatiated on the ethical, metaphysical, and imaginative elements of our art, but they would be found mere sentimentalist when measured by the grave requirements of practice, as enjoined by the Greeks and the best of their followers, from Vitruvius downwards.

The philologist Schneider had attacked the Latinity and personality of Vitruvius without a single advantage to the subject matter treated by our venerable author, to whom, above all,



he had denied the presumptive right of grumbling, which the architect inherited as his birthright in all ages. He thought Vitruvius was recovering all his ancient estimation. In a former course he had detailed the importance of the various discoveries and elucidations of his precepts, achieved chiefly by English enterprise and science in late years, and which it would be desirable to appropriate before they were pirated by the foreigner. The last of these (and of the highest importance) was the interpretation of the "scamilli impares," mathematically ascertained by Mr. Penrose. He produced the most recent commentators on Vitruvius (the last of twenty-three of all nations who had attempted it since 1520), namely, Amati, 1829, and Marini, 1837. By slow degrees this author, now nearly 1,900 years old, was becoming better understood. It appeared from the latter that there were to be found in the various libraries of Europe 53 original manuscript copies of the author. Every student should reverse Vitruvius, and at least possess the accessible translation of Mr. Gwilt.

He proceeded to comment on the great principles of the art, as laid down in the 2nd chapter, 1st book *Taxis*, order,—2 *Diathe-sis*, arrangement or disposition,—and 3 *Economia*, in the enlarged as well as the financial sense,—and *Thematismos*. These characters constituted design in architecture: with reference to the first, it is remarkable, that before him Aristotle had pronounced the effect of the art to reside in *order* and in *magnitude*; it was probably a Greek axiom. Order is the distinction of nature's productions; and the highest inventions of man assumed the same divine attribute; order affects us in the combined movement of military array, as contrasted with a mob; as the regular avenue contrasted with the wild disorder of the forest. All the great schools of architecture prescribed order and regularity even in small buildings; and this precept (strained perhaps too far in the seventeenth) had given rise to the picturesque school, which, aided by the romantic taste of part of the last century and the beginning of this, had affected the casual and irregular; by them the heterogeneous tastes and requirements of 800 years in the concrete cathedral, or the castellated mansion, were applauded and even imitated; but the painter will warn us of the difficulty of success in these groupings, in which eurythmia, the balance of quantities, and the apposite and felicitous contrasts of form and feature, are the acquirements of his life; and can no more be affected by the unskilful than the ease and grace of good breeding by the clown. However opposed the partisans of order and the picturesque as to minor productions of the art, there could be little doubt of their adoption of the former in all solemn and extensive works. It is remarkable, that in the paintings of Pompeii we discover evidences of a picturesque school, in the architectural representation of which there was variety or balanced points, but neglect of symmetry.

The second head was *Diathe-sis*—arrangement of the plan and disposition of the elements of the design—the grand legislation of the whole and the parts in all their purposes and variety of intention; here it is that the wisdom, taste, and tact of the architect ordains and institutes every provision and requirement, so that convenience, health, climate, access, egress, sewage, light, use, beauty and character, consistency and propriety, should enable it to work as a sentient body, and, like a fossil organic creature of nature, possess every vital provision but breath.

The creation of such a body by experience and invention from a chaos, and the production of a harmonious result upon a white sheet of paper, required originality of mind; the architect must possess the tactics of a general to oppose the difficulties and varying requirements of the site and surrounding circumstances; and, according to their variety, so ought his design to present an equal novelty in the arrangement and disposition of every case. He illustrated the process of thought by tracing the consideration and motives of the Taylor Institution and University Galleries at Oxford: that building occupied a site 260 feet by 100 feet. At the angle of St. Giles's and Beaumont-streets, the small end towards St. Giles's (abutting on houses) required an imposing front in approaching Oxford from the

west; the other extremity in Beaumont-street abutted on a row of modern houses, 40 feet high. It was then obvious that the usual pyramidal front (placed lengthways of the site, and diminishing with wings at the extremities) could not be resorted to; the disposition, therefore, was reversed, the lowest part of the building being in the centre; the edifice was disconnected from its ordinary neighbours by raising the whole site on an artificial terrace, of 8 feet high, in a rustic character; this latter enabled him to dispose of one of the four floors required in the elevation,—two were disposed in the height of the order, the upper central windows of which breaking through the entablature in arched heads, enabled him to light his attic with the upper portions, these large windows giving a collegiate and public character to the edifice, and reducing the four windows, or floors, to two. This disposition, though unusual, had, after due deliberation, been preferred by the judges. So the victory (if so it was) had been achieved like that of Trafalgar, by reversing the ordinary tactics. He apologized for illustrating his argument by a work of his own, on account of his having more intimately felt in this example the difficulties and the responsibilities of the architect and general.

*Economia* was the third great principle of design enunciated by Vitruvius; namely, the contrivance in which wisdom and beauty were united with that admirable fitness and economy exhibited in the productions of the great artist Nature, in all of which we find eccentricities and apparent caprices arising naturally from peculiar wants and uses united with corresponding variety and beauty. These coincidences are delightful to trace in the works of nature and of art; the whimsical processes of the crustaceous tube, the leaf, the flower, or corrugated stone; or the crocketed spire, in which we discover that what appears to be only a florid enrichment of architecture, is in fact the stair by which the master may ascend on its sides to repair its surface or adjust the vane; or the lizard on the handle of the Greek vase, which, when we use it, turns out to be, not the accident or caprice of the artist, but the nicest possible adjustment to the gripe and movement of the thumb and fingers.

Thus, what appears a superfluity, is in fact an essential: the multiple purpose of every feature of design is the delight and the justification of the architect in his plan and in his orthography.

In his plan the corridor, like the great aorta, should give life and communication to every apartment of his building. The sure test of a good plan is the small proportion of the passages to the available rooms in the sum of superficial contents. The difficulties of this geometrical art could only be known to those who had attempted the unexceptionable plan. The party-wall uniting all the chimneys, giving strength to the building, security on either side against fire, and passages for the flues, was the epitome of this kind of economy—the economy by which all the wants and uses were united with beauty and proportion traced in the wise structures of the greatest masters. Everywhere enough, but nothing over; and, when ventilation, light, drainage, with the acute, sparing, but sufficient use and adaptation of all materials, provisions, and requirements, were found in the examination of a building, a kind of sublime was felt; and we then understood the figure of speech which calls the great Creator the architect of nature.

*Economy*, in the lower sense, was exhibited by the architect who, together with sufficient beauty, furnished at the same time the largest available accommodation, and both at the smallest cost. The comparison of the Taylor Institution and University Galleries, with other contemporary buildings, might be cited as advantageous in this particular, containing as it did 38,000 feet superficial, of available accommodation, at the cost of 52,000.

The works of Sir C. Wren might be quoted as the examples of the largest products, at the smallest cost, and it would be easy to show that at the same time that he was the most magnificent architect of modern times, he was beyond comparison the most economical also.

Character and fitness of style (*Thematismos*) was the fourth great principle enjoined by Vitruvius,—sadly transgressed in modern build-

ings, the destination of which it would be often impossible for the stranger to pronounce upon from their external appearance. One great occasion of this was the nationality which unconsciously accompanied the designs of various countries. In the great military empire of Russia, all buildings had the aspect of barracks,—in France, till now monarchic, of Royal palaces; in papal Rome, all were ecclesiastical; amongst the nomadic Turks, all was tent fashion. In domestic England, domesticity was universal, and the barracks in Birdcage-walk were hardly distinguishable from the domestic houses in Regent's-park. Our churches, public offices, and banks, look like domestic habitations. He produced the town house at Vicenza, by Palladio, and the Louvre, by Perrault, as the finest examples of correct appropriation, and significance of character.

The Dream of Poliphilus, the Palace of Architecture, Chaucer's Temple of Mars or House of Fame, the Arabian Nights, Sir C. Wren's descriptions, the eloquent Moller, and the consultation of poetic writers generally, should be used to stimulate the proper sentiment of our art.

In the next he should proceed to comment on the principle of proportion as laid down by Vitruvius.

#### PROPOSED REVISION OF THE METROPOLITAN BUILDINGS ACT.

As the new Metropolitan Buildings Act, now two years in embryo, will probably be produced in the ensuing session of Parliament, it may be well to recall the recollection of the profession and the building interest in general to the position of the present law, and to the proposed alterations suggested by the Bill laid on the table of the House of Commons at the close of the last session. The delay which has occurred has certainly been beneficial in cooling down many prejudices, and in giving a full opportunity for ascertaining the working of the machinery erected by the present law; and though it is well known and admitted that this machinery has not worked so smoothly as could be desired, and has, indeed, been in danger of a dead lock, yet the principle originally established of constituting a board of appeal in building matters, and also a court of record, from which much useful statistical information will eventually be obtained, has met with general approval.

The want of this establishment was the great defect of the Act of 14th Geo. III., and though it was also objected to it, that under this Act a district surveyor could scarcely venture to give a certificate of a building being erected fully in accordance with its provisions,—the same objection might be taken to the present Act, where the requirements to render a building a model house according to law are increased to a still greater extent. It is curious to observe how this difficulty has been felt in each succeeding revision of the Act, and how necessary it has been found in all attempts at improvement to cast overboard the heavy lumber of detailed restrictions, and to reduce the enactments to as few and as concise regulations as can be formed,—to work out, in fact, the principle of modern legislation, that private interests and rights should only be so far limited and controlled as they interfere, or come in contact, with the interests of the community at large. The revised Bill is an instance of this, and the suggestions which have been subsequently made carry out the principle still further. How different is this from the first draught of the Building Act of 1844! wherein we all remember with dismay that the schedules were framed with the minuteness of a specification, and the scantings of joists, quarters, and rafters were detailed, down to 4 by 2½.

Some of these absurdities disappeared, but enough still remain in the existing Act to require a remodelling of the whole; or, in the words of the preamble of the new Bill, whereas the provisions of the Act 7 and 8 of her present Majesty, and a subsequent Act amending the same, "have been found insufficient for the objects for which they were designed," the said Acts are repealed, and other provisions made in lieu thereof.

It is well known that a slumbering dissatisfaction was soon felt by all parties at the



working of the Bill of 1844; that several modifications were required, and that a Bill to amend the Act was passed within about two years, and that difficulties continued to increase, which the constitution of the board tended rather to exasperate than alleviate. Under these circumstances a committee was appointed, by direction of the Commissioners of Woods and Forests, to consider the defects of the Bill, which committee comprised representatives of the official referees, the district surveyors, and the builders in general. The report of this committee, which was never made public, was sent to the Commissioners of Woods and Forests; and the Bill laid on the table of the House of Commons in July, 1849, by the Earl of Carlisle, is supposed to be the result of this report.\* There is great reason, however, to suspect that the framers of this Bill of 1849 have not limited themselves to the report, or adopted the suggestions of the committee alone; but that many of the provisions, especially those constituting the new Board of Appeal, have been drawn and inserted without any recommendations from the committee relative thereto. Upon the publication of this Bill it was reviewed in one of the editorial articles of *THE BUILDER*, pointing out some notorious objectionable clauses; but it has not hitherto attracted much attention, except among the district surveyors, who, being the chief instruments for carrying it into effect, are primarily interested in obtaining enactments that clearly define their duties. A committee of district surveyors was, in consequence, nominated among themselves, who have carefully examined the Bill, made various suggestions, and have reported these suggestions to the Earl of Carlisle.†

The alterations proposed by the district surveyors are important and valuable, and evince great desire on their part to make the Bill clear and precise. They all tend to facilitate its working, and by advising the omission in the schedules of much detail, they will effect a more certain execution of the Act, and prevent many disputes with builders. The reduction of these details might, however, be carried still further, with much advantage to all parties, and without detriment to the great principle of a Building Act,—security from fire communicating from house to house, and stability of external construction.

Upon comparing the two Bills of 1844 and 1849, several important variations will be found in the enacting clauses, as well as in the schedules.

First, as to public buildings. The supervision of these is taken out of the hands of the district surveyor, and placed under one of the official referees. As no general regulation can be made for the construction of public buildings, the drawings, as heretofore, are to be sent to the office of Metropolitan Buildings; but a curious provision is made with respect to them, as the drawings are only to be sent, "if required, by the official referee," and a certificate to be given by the referee that such building may be executed, only "if required by the architect." It is difficult to understand the motive of this arrangement, as no architect would commence a public work exposed to the uncertain supervision and requirements of an official referee,—especially as the clauses now stand,—where there is too much latitude given to the official referee to show himself capricious; and should he by habit be timid or averse to new modes of construction, he may, under the proposed clause, cause great annoyance to all parties. Again, the clause as now drawn up, authorizing ONE only of the official referees to decide upon the construction and final approval of a public building, is highly objectionable, and almost affronting to the profession, as no architect of any experience could submit with honour to modify his design at the mere fiat of one whose position alone gives him the superior power of control. In the existing Act, this controlling power was vested in all the referees jointly, and to the opinion of three professional gentlemen, no one would feel reluctant to submit. The Committee of District Surveyors have sug-

gested that the drawings should be sanctioned by the referees jointly; but the decision upon any point involving any subsequent alteration, should also be a joint decision and not of one alone. There appears throughout the Act a desire to allow one official referee to act alone and independently, and a clause would be useful, giving the building party power to claim the inspection and decision of two should he so require it.

The clause appointing a paid legal agent to act in all cases on behalf of the district surveyors, and to act also as adviser to the referees themselves, has been sufficiently and severely commented on by the editor of *THE BUILDER*, and requires no further condemnation: as the district surveyors also object to such an appointment, and have in their report stated good and sufficient objections thereto, there is no doubt that these clauses will be cancelled.

The proceedings in cases of party structures are rendered more simple, as, in matters of doubt, immediate reference can be made to the court, under whose directions all proceedings can be taken, if the parties themselves do not agree. This principle, in fact, seems to pervade the new Act, and the court has acquired thereby a greater directive power.

An important alteration is made in the schedules. The distinction which has hitherto been maintained between the dwelling-house class and warehouse class of buildings, is now entirely abolished, and no difference is made between party and external walls as regards thickness. All buildings of whatever description, except public buildings, are classed under four rates, and all walls are regulated in thickness by the number and height of stories in their respective rates. This is a great improvement upon the former Acts, and will give increased facility in execution and superintendence.

Perhaps, however, the most important variation made in the Act is the new constitution of the Court of Reference. If it has been the object of the framers of the bill to prevent disputes and discussions at the table of the board, and "to make things pleasant," a more effective system could scarcely have been devised. Under it, in fact, no discussion need arise. The registrar is placed at the head of the court; to him, in the first instance, and through him subsequently, all applications must be made, and by him eventually all points must be decided. In all cases of difference between a district surveyor and other parties, the registrar directs one of the official referees to inquire into and report to him the facts and his opinion upon all points requiring architectural or structural knowledge; or if the difference between the parties be on legal points, the registrar decides alone, after hearing the respective statements. In either case, however, he is the party, not only, as at present, to see that the award is legal according to the Act, but to decide also the terms of the award. The distinction made in the clauses between points involving architectural knowledge and those requiring legal knowledge, will probably be so fine and subtle in all matters of dispute, that it will require but little care on the part of a skilful lawyer to draw all cases into his department for decision. Indeed, such must be the natural tendency of a dispute under such an arrangement. Something may be said in favour of this new constitution: it gives unity, rapidity, and a greater degree of legal uniformity to the decisions; and if under the old Buildings Act such cases were decided by a magistrate selected almost by chance, and helplessly unacquainted with building matters, there is no reason to doubt that a legal gentleman, who has acquired by experience a general knowledge of building technicalities, and assisted as he would be by his officers, would have any difficulty in arriving at a just conclusion on all matters submitted to him; but the writer cannot help feeling great regret that the constitution of the court, as established under the present Act, wherein the official referees themselves form the tribunal, should have failed, as this proposed alteration seems to indicate; or that any cause should have arisen which gave ground for abolishing a high and important trust which had been placed in the hands of the architectural profession. How this has occurred it would perhaps be painful to in-

quire;\* but the result evidently would be that the official referees, instead of sitting as judges *in banco*, would be little more than officers of the court—the eyes of the registrar: their duties in many cases will be similar to the district surveyor's, and their position in fact will be official surveyors and not referees.

In the report of the committee of the district surveyors, a slight allusion only is made to this subject; they leave it to the higher authorities, but it is one which ought to be still further considered. To the Earl of Carlisle, who has taken a most active part in the measure, and given a patient hearing to all suggested improvements, the thanks of the profession are due; and there seems now to arise a strong hope, that before the close of the ensuing session of Parliament, his lordship will have produced that *rara avis*, a satisfactory "Builders' Bill." T. L.

#### ON THE SUPPLY OF THE CATTLE MARKETS AND THE ABATTOIRS OF PARIS.†

The regulations of the markets, as far as we have followed them, are apparently as perfect as can be devised, excepting, perhaps, that the forcing all the sales to take place upon the markets may be regarded as an interference with the rights of the buyer and seller. There are, however, two other regulations affecting the butchers' trade of Paris, which are far from being justifiable on any principle of common sense or of political economy. These regulations are the ones establishing,—first, the "Caisse de Poissy,"—secondly, the limitation of the number of butchers.

The "Caisse de Poissy" is in fact a bank through which all the transactions of the principal markets are forced to pass. The capital is formed by the deposits, or caution-money, of the Paris butchers, who are entitled to a credit upon the bank to the same amount. Before attending the market, they pay into the bank the sum which they intend to lay out, and they pay for the cattle they purchase by an order upon the Caisse. They are entitled to overdraw their account to the amount of their credit, on the condition of reimbursing the sum within the week; and are charged at the rate of 5 per cent. for the advances, receiving also 5 per cent. on their deposits. The clerk of the market certifies the price of sale, gives a copy thereof, which is registered, and the amount paid upon presentation at the Caisse. There is a certain advantage in this system, inasmuch as it facilitates the settlement of the sales; the error is in making its adoption forcible, for the Caisse charges a very heavy commission, and the butchers avail themselves but little of the facilities of the credits. The commission is 10f. per head of cattle; 6f. per cow; 2f. 40 c. per calf; and 70c. per sheep. In 1846, of the sixty millions of francs which passed through the bank, sixty-three butchers did business to the amount of about 33½ millions, of which only three millions were upon credit; the 438 others did business for the remaining 26½ millions, borrowing from the Caisse eight millions. It is hard to force the butchers who do not avail themselves of the advantages of the bank to pay just as though they did. The profits, however, of the Caisse are paid over to the city of Paris, and figure as an important item in its budget.

Before quitting this subject it may be worth while to add, that when the graziers effect their sales by the commission agents, they pay at the rate of 3 f. per head of cattle, 2f. 50c. for a cow, 1f. 50c. for a calf, and 20f. for every hundred sheep sold through them.

As to the regulation of the number of the butchers, that is a relic of the old system of corporations which has been revived since the revolution. The terrible crisis which France underwent between 1793 and 1800, so totally upset all the regular course of trade, that the supply of butchers' meat to Paris became very irregular and unsatisfactory. The French people have a mania for governmental organization, and are consequently apt to regard the irregularities of unrestricted commerce with a very jealous eye. In this case, the municipal authorities could not perceive that the evil

\* It is to be regretted that the gist of this report was not made public. So far as we can learn it was scarcely attended to in the preparation of the new Bill.—En.

† A judicious report of the discussions by this committee would have been advantageous.—En.

\* It should, however, unquestionably be inquired into, and the fullest justification of the step be obtained before it be acquiesced in.—En.

† See page 2, ante.



arose from the disturbed state of the nation—not from the comparative essay of free trade. After several attempts to regulate unlimited competition in the butchers' trade, they returned to the close corporate system of former times; and at the present day the number of butchers in Paris is limited to 501, to be further reduced, I think, to 460, on the decease of the present possessors of the privilege. One object proposed to be gained by the limitation, namely, to do away with the small butchers, who do not buy at Poissy and Sceaux, has certainly not been attained. There are, in fact, 214 regular butchers who attend the markets and buy the cattle for their own consumption, and 74 carcass butchers, who sell in detail to the 213 small traders.

*The Abattoirs.*—As was before stated, the cattle purchased on the markets are directly led into sheds, which are destined to receive the animals intended for the five abattoirs of Paris. These abattoirs are situated, three to the north, and two to the south of the Seine, those on the northern side being also the largest. They are situated in the quarters of Montmartre, Menil Montant, and Roule; those to the south are in the quarters of Villejuif and Grenelle. The private slaughter-houses for pigs are in *les Rues de Carême prenant, St. Jean Baptiste* (near *la Rue Papinère*), and *la Rue des Vieilles Tuileries*. There is a large abattoir at Nanterre for the same purpose, which was built by a company, and in which nearly half the pigs killed for the Paris market are prepared. The city of Paris also has begun the construction of a pig abattoir in *la Rue du Château, Laundon*.

The general plan of the abattoirs for cattle may be described as consisting of a large open court, in which the animals are separated, so as to place them in the layers reserved for each particular butcher. At the entrance to the courts are placed the offices of the different employees of the establishment. On both sides are the slaughter-houses, which again are surrounded on their other three sides by the cattle layers. The fat-melting places, and those destined for the preparation of the tripes, and the first preparations of the offal, are at the extreme end of most of the Paris abattoirs.

The layers are never of a less superficial content than the slaughter-houses; they are usually 45 metres long, by 9 metres wide in the clear; about 147 feet 8 inches by 29 feet 7 inches nearly, and by 14 feet 10 inches in clear of ceiling. They are made with a floor over, to receive the hay and fodder necessary for the cattle and sheep. The former are fastened to rings let into the walls, and are allowed 3 feet 4 inches frontage nearly; the latter are inclosed in pens fitted up with mangers: water-troughs are sometimes furnished to both; at others the animals are led to the watering-places in the court-yards. Each layer is calculated to hold 50 cattle and 400 sheep.

The passages between the layers and the slaughter-houses are 33 feet 4 inches wide. The slaughter-houses are in groups (two and two), with a court between, also 33 feet 4 inches wide. Each block is of the dimension given above for the layers, 147 feet 8 inches, by 29 feet 7 inches, adding, of course, the thickness of the external walls. They contain eight divisions, about 15 feet 8 inches wide, by 29 feet 7 inches long, for the purpose of slaughtering; the centre, or ninth division, is reserved for a staircase, affording access to a story which was at first deemed necessary for the purpose of drying the skins and the fat. In the abattoirs built of late, this upper story is not executed, for it is found to be useless; but the court between the two blocks is roofed over, which is not the case in the Paris abattoirs. This trifling change has rendered the working of the abattoirs much more satisfactory; it has been adopted at Nantes and at Caen with perfect success. The separate divisions of the abattoirs are divided from one another by walls, 8 inches thick, of very hard stone, to facilitate the cleansing. At a height of 8 feet 4 inches two beams are let into the wall, to which the animals are suspended for the purpose of being cut up; hooks are let into the wall to receive the different portions; a crane is fixed to hoist the carcasses; a large water-cock is also placed so as to enable the assistants thoroughly to cleanse the paving. Rings are let into the floor to

fasten the animals; the paving is laid with a fall, to collect the blood, great care being taken to bed the pavement upon a very thick coat of concrete, to prevent the ravages of the rats. A circulation of air is maintained by means of open gratings over the doors, and over the upper parts of the partitions. Places to receive the excrescences are furnished as near the slaughter-houses as possible; and large sewers are laid down throughout the establishments.

Stables and coach-houses are provided for the butchers. A large pump, worked either by a steam-engine, or by horse-power, is erected in each abattoir, with reservoirs to contain a considerable supply of water. The importance of this branch of the service may be estimated from the fact that every animal that is killed gives rise to a consumption of about one-fifth of a ton of water if the slaughter-house be properly cleaned after each operation. The town of Paris contracted for a quantity of 97,350 tons per annum for the five abattoirs; but it is not considered more than half what is really required.

The tall-w-melting shops are, in the principal of these establishments, 11m. 50c. by 8m. each (38 ft. 3 in. by 26 ft. 3 in.). The coppers are made to hold from 500 to 2,000 kilogs. at each boiling; this is generally effected by an open fire, though of late steam has been employed. The odour arising from the fat melting is one of the worst evils of the abattoirs; and we would do well not to allow its being carried on in the interior of London. The triperies are placed near the tallow-melting shops (*les fondoirs*) and are of very considerable dimensions.

The commercial results of the abattoirs, in whatever light we examine them, have been eminently successful. They facilitate the inspection of the cattle to be slaughtered; indeed there is a Government agent in each, who is specially charged to prevent diseased animals from being converted into food for human beings. The cattle are lodged in airy, comfortable quarters, and are allowed to repose from the fatigues of the road. The butchers find very considerable advantage in having their meat thus slaughtered in the best hygienic conditions; for it is less likely to turn, and keeps much longer. There is a certain waste of labour; for the men employed in the slaughter-houses would, if that operation were carried on in the town, be employed during their spare time at other works. But the tendency to create a set of wholesale dealers appears to obviate this objection. The small butchers, who purchase of them, exonerate themselves from a very heavy charge, and, at the same time, the men employed in slaughtering are, by the concentration of this part of the business, more equally employed. The Paris butchers fully recognise the advantages of the institution, though at first they vigorously opposed its introduction.\* G. R. B.

#### THE MOVEMENT AGAINST CHURCH RESTORATION.

THERE appears to be on the part of some writers on architecture a desire to produce a reactionary movement against church restoration, to which we owe the preservation of so many fine examples of mediæval architecture, rescued from the hands of the parish builder and an annual coating of whitewash. In perusing a recent treatise (misnamed) on Cottage Architecture, I was struck by an unmeaning tirade against architectural restoration. The writer gives an instance of an addition which has not been made in harmony with the general character of the building; but I do not exactly comprehend how one or two such instances justify a general censure of church restoration: the blame should rather rest with the architect for an inappropriateness of design, rather than with the object of the design itself. But I suppose, aware of the weakness of his cause, he summons to his assistance a definition from the "Seven Lamps." Hear Mr. Ruskin's opinion of the true meaning of the word restoration—"It means the most total destruction which a building can suffer; a destruction out of which no remnant can be gathered,—a destruction accompanied with a false description of the thing restored."

Now, how does this definition apply in the case of a church built between A.D. 1307

and A.D. 1380, a tolerably perfect specimen of the Decorated, which subsequently, in the lapse of time between James I. and the present era, is deprived of its ancient woodwork and a debased Italian substituted in its stead, those remnants of its former beauty which are suffered to remain on the score of utility being probably whitewashed, or grained in imitation of oak, in place of the rich hue the wood itself had acquired,—a flat ceiling of lath and plaster substituted for the beautiful groined roof, and a host of other absurdities perpetrated too numerous and ridiculous to mention? We, in this age of barbarism, cannot appreciate such beauties, and would rather have pews in character with the building and the oak itself than the grained imitation, and the groined roof than the plaster ceiling; consequently they are removed, and a restoration made in character with the original building: such, I take it, is the genuine meaning of the word restoration.

As regards the sweeping process practised at Westminster Abbey and elsewhere, of which he so bitterly complains, I cannot pretend to such an affection for cobwebs as he seems to possess.

The north porch of St. Mary Redcliffe, the restoration of which to its pristine beauty seems to affect him so deeply, was, previous to its restoration, in so decayed and weather-worn a state as to be illegible,—corbel heads, cusps, spandrels, and tracery had all absolutely fallen to pieces. A small portion only has been renewed,—(it is not a thing done as he erroneously thinks, and flippantly remarks on), and if he had seen how it is done, which he evidently has not, he might have avoided an erroneous paragraph, which throws doubt on the correctness of the whole treatise.

Who will refuse thanks to those who desire to rescue from complete destruction a beautiful monument for posterity, instead of leaving it to fall to dust from a morbid love of picturesque ruins? J. THOMAS.

#### THE CENTRAL SCHOOL OF DESIGN.

THE prizes were distributed to the students on the 16th by the Right Hon. H. Labouchere, M.P., who presided. Lord Granville supported the chairman, and Mr. Redgrave, one of the head-masters, made some observations. The report, read by Mr. Deverell, the secretary, showed that the average number of students, male and female, in each month in 1848-49, was 383; while for the last nine months of the current financial year to the 31st December, 1849, the average had amounted to 423; thus exceeding the attendance in the preceding year by 40 in each month. The sums distributed in prizes amounted in the whole to about 260l. Amongst the successful students were Miss Alice West (most justly so), Miss Louisa Gann, Miss Charity Palmer, Miss Eliza Mills, Mr. Johnson, Mr. Butler, Mr. Portch, Mr. Griesbach, Mr. Moye, Mr. Brown, sen., Mr. Bell, Mr. Slocumb (for a design for a stained glass window and a ceiling), Mr. Hodder (for ditto and a panel), Mr. J. George, and Mr. J. B. George.

The exhibition of the students' works is very far superior to any previous collection there, and will well repay a visit. It is understood that it will be open only during (this) Friday and Saturday, but we hope that the time will be extended.

#### WORK AND WORKMEN AT BIRMINGHAM.

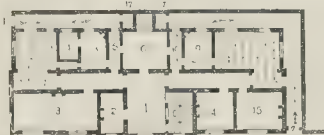
—An interesting series of articles is in course of publication in the local *Journal*, on the state of trade and the condition of workmen at Birmingham,—designed, as the writer states, "firstly, to show that under a system of commercial policy which brings our produce into immediate competition with foreign manufactures, trade is active and healthy; and, secondly, to prove the fallacy of the theory that wages have been reduced concurrently with, or in the ratio of, the reduction in the price of the necessities of life." The most important of the fifty or sixty totally distinct staple manufactures of the town and its vicinity are being specially noticed, and the general results arrived at, as remarked, are extremely favourable, and seem to show that a full tide of prosperity is already fairly setting in, in place of the past low ebb of trade depression.

\* To be concluded next week.



## BRIGHTON DISPENSARY.

MR. HERBERT WILLIAMS, ARCHITECT.



GROUND STORY.



UPPER STORY.

## NEW PUBLIC DISPENSARY AT BRIGHTON.

THE accompanying engraving represents a building now nearly completed, which has been erected in Brighton on the east side of the Queen's-road, or principal approach to the railway terminus, a situation at once desirable for a public building, and at the same time central, and convenient for its benevolent purposes.

The foundation-stone of the structure was laid in March last by the president, the Earl of Chichester, in the presence of most of the principal inhabitants.

The architect is Mr. Herbert Williams, of London, and the builders are Messrs. G. Cheesman and Sons, of Brighton.

The character of the building is of the period of Elizabeth and James the First, the exterior being built of snapped flint, with stone and cement dressings. It has a frontage towards the Queen's-road of 100 feet, by a depth of about 50 feet.

The plans, with reference annexed, show the arrangement of the interior, and have been formed for the most convenient and economical working of the institution, at the same time preserving a proper classification of the patients.

By an arrangement of *fixed seats* in the patients' waiting-rooms, they are prevented crowding on each other: they are obliged to enter the prescription rooms in rotation, and pass out, in like manner, after being supplied with medicine. There is also a provision of wards in the upper story, for taking into the house severe or important cases.

We are informed the above is one of the oldest charitable institutions in Brighton, established in 1809, and has hitherto, in comparative obscurity, been the means of relieving very large numbers of the poor inhabitants; the great increase of whom has induced the governors to erect the present more conspicuous building. Let us add a hope for its success, certainly not the less sincerely as the present structure forms a pleasing feature in the road to the town.

## REFERENCES.

Ground Story, 14 feet high.

1. Surgeon's patients' entrance.
2. Surgeon's patients' waiting-room.
3. Surgeon's consulting-room.
4. Room for dressing wounds.
5. Surgeon's patients waiting for drugs.
6. Dispensary.

7. Physician's patients' entrance.
8. Physician's patients' waiting-room.
9. Physician's consulting-room.
10. Physician's patients waiting for drugs.
11. Principal entrance.
12. Waiting-room for new patients.
13. Museum and library.
14. House surgeon's sitting-room.
15. Dispensers' sitting-room.
16. Staircase.
17. W. C. for patients.

Upper Story, 14 feet high.

- A. Board-room.
  - B. Secretary's office.
  - C. House surgeon's bed-room.
  - D. Dispenser's bed-room.
  - E. Staircase.
  - F. Landing.
  - G. W. C. for patients.
  - HH. Wards for beds.
  - I. Nurses' room.
  - K. Lobby.
  - L. Spare room.
- In the Basement Story.*
- Drug Store.
  - Hot, cold, and vapour baths.
  - Boilers and steam apparatus.
  - Kitchen, scullery, cellars.
  - Servants' rooms and other domestic offices.



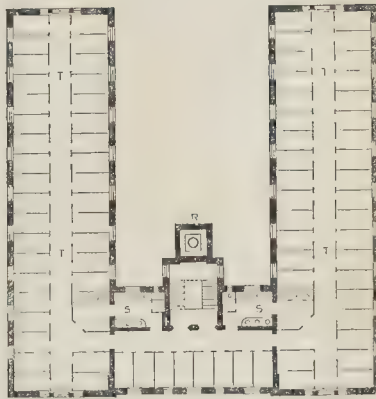
## THE ARTISANS' HOME, SPICER-STREET, WHITECHAPEL.



SECTION.



GROUND STORY.



ONE-PAIR STORY.

THE ARTISANS' HOME,  
SPICER-STREET, WHITECHAPEL.

In a recent number of our last volume we described fully the Artisans' Home, recently erected, under the direction of Mr. Beck, in Spicer-street, Spitalfields,\* and we have thought it desirable to make that account complete by preparing plans of the two principal stories and a section through the building. They are drawn to a scale of 32 ft. to an inch.

The following references show the appropriation of the various apartments,—and we may add that the two upper stories are exactly the same as the one-pair:—

- A Reading room.
- B Coffee room.
- C Kitchen.
- D Lavatory.
- E Cook's bar.
- F Library.
- G Scullery.
- H Hall.
- I Superintendent's chamber.
- K Ditto living room.
- L Ditto office.
- M Store room.
- N Cook's living room.
- O Ditto chamber.
- P Entrance to W. C. and urinals.
- Q Cook's shop.
- R (First-floor plan) ventilation shaft.
- S S Lavatories.
- TTTT Dormitories.

**PRICE OF LAND IN PLYMOUTH.**—The Commissioners of Improvement have recently purchased land to the extent of 700 square feet, at the price of a guinea a-foot. The land is required for widening of Bedford-street. The same land might a few years since have been bought at less than one-fourth of the price.

## VENTILATION.

DR. CHOWNE lays much stress on his *syphon-pipe* acting without the aid of artificial heat, but however satisfactory this may be made to appear in an experiment, it will be found in practice that the action going on in a pipe will be proportioned to the degree of heat (as either applied to the pipe, or in the air once made to enter it), and the difference in the height of the inlet and outlet of the said pipe; this cannot be disputed, and, therefore, may be called the true theory of the matter. The disturbing causes are then to be taken into consideration, and although these in practice vary much in detail, they may be classed under two heads, viz., obstruction by high winds or eddies at the top, and suspension or withdrawal of the supply at the bottom.

If there is any truth in the science of pneumatics, as at present understood, we are taught that the air of the atmosphere at any given level, presses equally in all directions; therefore, as the bent part of Dr. Chowne's pipe, which gives it the *syphon* character, is not of the slightest utility, and certainly has not the plea of beauty to recommend it, I should cut off the whole of the bent part, or in other words, *un-syphon* it; thus, if it were cut in a line with the top of the short leg, the power of action in the pipe would be equal—if at the bottom of the long leg, the advantage would be increased in proportion to the vertical height of the short leg so cut off.

The flow of air through a pipe, like the flow of water, is a purely natural effect, and the only office the pipe has to perform is simply to protect the fluid from interference, and consequent dispersion, previous to arrival at its destination; and that of air upwards. The syphon is a very useful invention; but would any person, having to bring water permanently from an elevated reservoir or cistern, think of applying a syphon? Certainly not; he would insert his pipe in the bottom, and thus allow the con-

tents to be conveyed in any downward direction at pleasure. Such is the refinement of the age, that not content with the exquisite workmanship in the doors and sashes, we must needs have even the smallest chinks around them covered with list, or some similar contrivance to prevent the possibility of a breath of air entering from without; and yet, in rooms thus all but hermetically sealed, we expect free and healthy action in the lungs of the occupants, and also in the chimney, both of which are impossible under such circumstances. The want of the first of these desiderata is, I fear, doing its work to a far greater extent among the people of England than can well be imagined by them, owing to the invisible and subtle nature of its attacks; and when its victims are made sensible of its effects, they are attributed to any and every cause but the right one. The latter addresses itself to the senses in a more substantial form, and thus compels attention; this is afforded in the first instance by a contraction in the chimney opening, and a narrowing of the throat to the smallest possible area, by the introduction of registers or otherwise, and is so far all very well; but, in order to meet the deficiency of supply of air, a further expedient has been found necessary, and has met with most extensive adoption,—so much so that the demand has, if not given rise to, added very considerably to the numbers and importance in London and other large towns of a trade till lately comparatively unknown. I allude to that of the zinc-worker; and as many of their productions would do credit to any body or any country, and are in unison with the improvements in the arts and manufactures of the present day, I should be sorry to say anything offensively of them,—but when I view the variety and number of chimney-tops, ranged rank and file adown their roomy shops, or cast my eye above,—for, look which way you will, wherever you can get a view of the house tops, you see them thrusting out

\* Page 589, Vol. VII.



their gaunt arms, or rearing their black and ugly crests,—I cannot help feeling regret that there should be such a lack of knowledge on the subject as to render them, apparently, indispensable.

Having paid much attention to the subject through a series of years, I have been long convinced that the only practicable way of improving the ventilation of domestic apartments, and at the same time securing the greatest amount of warmth to the room, coupled with a good and proper action in the chimney, is to admit the external air to a chamber at the back of the stove, lead it by proper management under the hearth, and bring it warmed into the room. With this view I invented a stove some eight or nine years ago, and felt very desirous of taking out a patent for it, but after entering a caveat was induced, through a dread of the enormous expense and great risk, to abandon it. It is now fourteen years since I first applied my invention to a stove in my own house, and at the present time I have several thus treated. I get my rooms well warmed, sufficiently ventilated, and enjoy perfect immunity from smoke. All this may be effected merely by an adherence to the simple and beautiful laws of nature, which are as unerring as their almighty Creator.

WM. WILDS.

#### WELSH EDUCATIONAL INSTITUTION, LLANDOVERY.

PROFESSORIAL PRACTICE.

YOUR number of *THE BUILDER* of last week contained a notice of the laying of the first stone of the new Educational Institution at Llandovery. There must, however, I think, be some mistake in the latter part of the paragraph, in which Messrs. Fuller and Gingell are described as the architects,—as the names of these parties are affixed to the contract, and they are bound in heavy securities to execute the building for the sum of 3,500*l.* Messrs. Fuller and Gingell are, therefore, assuredly the builders: and the name of the architect has, possibly for some reason or other, been suppressed or omitted. As it is a building which has excited considerable interest among the public in general, as well as the Principality in particular, perhaps you will be good enough either to favour us with the name of the gentleman whose design is being carried out by Messrs. Fuller and Gingell, or afford some probable explanation of the seeming inconsistencies of the case.

J.

The subject of the erection of the above institution having been alluded to in a late number of *THE BUILDER*, we think this may be a good opportunity to put you in possession of some of the facts relating thereto, involving, as they do, a principle of acknowledged importance in professional practice, which you have shown on many occasions that you fully appreciate. Three designs, arranged in the order of the amount of accommodation they afforded, were selected from twelve submitted in a limited competition. No. 1, it was fully believed by all who had had any experience in building matters, far exceeded in extent what could possibly be executed for the sum proposed to be expended—viz., 3,000 guineas; it was consequently thrown aside by the committee previous to the occurrence of another meeting. However, the authors of this design strongly asserted that they could find a contractor who would undertake it for the sum proposed. Upon those considerations solely the committee determined, after much deliberation, to give them a trial. Working drawings were accordingly prepared, and tenders called for by advertisement: none, however, were received by the committee; and a further opportunity was afforded to the architects to fulfil their pledge as to bringing forward a contractor. This engagement, however, it seems they were unable to perform, as, on a future occasion, they offered to take the contract themselves, and requested the committee to add four hundred pounds, to prevent their being out of pocket by the job. The committee explained that, in justice to the two next selected plans and the other competitors, they could not accede to this; but, finally, entered into the following "Provisional agreement:—sum prescribed, 3,150*l.*; architect's

commission, 158*l.*; travelling expenses, 39*l.*; for extra work, 53*l.*—total, 3,400*l.*: 800*l.* to be paid when the contract is signed; 2,300*l.* at different stages until the business is completed, and 300*l.* in three months after the completion. The architects to find responsible sureties for 1,600*l.*, and the building to be completed within fifteen months." We would merely add, as authors of one of the three selected plans, we were deprived of all chance of adoption, by Messrs. Fuller and Gingell, architects, having, according to the public papers, accepted the contract themselves for 3,500*l.* Thus, the architects, to retain their position, have actually pledged themselves by sureties to do the work to their own satisfaction, with, at any rate, a loss on one of the branches of their business. In conclusion, we would repeat, that Messrs. Fuller and Gingell are not only architects, but likewise contractors.

CLAYTON AND BELL.

#### NOTES IN THE PROVINCES.

To the munificent offer of 5,000*l.* towards a new General Hospital at Bristol, another, of 1,000*l.*, has since been added.—Advertisements for tenders for the drainage of Radnor county gaol, on a plan and specification by the county surveyor, are to be published in the *Hereford Times*.—The editor of a Hampshire paper, referring to the exhortation of a correspondent to establish a Gas Consumers Company at Newport, thinks it "monstrous to suppose (if correct) that in the present day, when a pure and full supply of this necessary article is proffered to the acceptance of the city of London at four shillings per thousand cubic feet, any portion of the public will long or tamely submit to a charge of nearly four times that amount! especially when the materials for making it can be procured equally good and as cheap." In the statement of his correspondent, it is said, "the printed list informs me that the regular charge is fifteen shillings per thousand cubic feet; but—the company do not encourage the meter system! instead of which they allow you (?) to use a 12-hole argand burner, by paying their charge of 3*l.* per annum! the same price which they started at some 28 years ago." Great complaints are also made as to the quantity supplied, from want of sufficient pressure within, a defect which the editor proposes to remove by a counter pressure from without.

It is stated, as a contrast to the antiquated Newport system, that "the town of Cowes (not consuming half the quantity) is supplied at 8*s.* 4*d.* per thousand, the company at the same time realising 10 per cent. per annum, and putting by a 'rest.'"—Whitworth new church was consecrated on Thursday week. It will accommodate 1,200 persons. The funds were raised by subscription.—A chancel window, by Messrs. Holland, of Warwick, has been recently put up in St. Paul's Church there. The Saviour bearing his cross is the principal figure. The ground is filled up after an elaborate ancient pattern, in which every variety of colour is blended. The Countess of Warwick, Lord Guernsey, and Sir Charles Douglas were among the chief contributors. The church is entirely free and unappropriated.—A new corn exchange is to be erected at Liverpool, according to the *Albion*, near the old one in Brunswick-street. It will extend to Water-street. The necessity for such an improvement is said to be shewn by the fact that the imports of wheat into Liverpool in 1849 were 552,545 quarters, as compared with 160,000 quarters in 1809-10. Want of light in some parts of the old Exchange is also much complained of.—A painted window, representing the crucifixion, has been put up by Mr. O'Connor in the eastern lancet of the chancel of Sention Church, Notts. It is an offering by Miss K. E. Wyatt, sister to the incumbent. The immediate groundwork of the cross is a "vesica piscis" of a ruby colour.—The first stone of a new church, to be called St. Mary's, has been laid at Gomerby by the Vicar of Birstal.—A committee has been appointed by the Leeds council to consider the propriety of purchasing the works and property of the two gas companies, the water-works, and the toll bridges within the borough.—Efforts are being made to erect a corn exchange at Kidderminster.

—The Hartlepool Gas and Water Company, says a contemporary, "have reduced the price of their gas from 6*s.* 8*d.* to 5*s.* 5*d.* per 1,000 cubic feet, less 5 per cent. for prompt payment. The consumers, however, still cry—'Lower! lower!'"—Notice has been given to Mr. Playfair that the treasury has sanctioned the immediate commencement of the excavations for the new buildings on the mound at Edinburgh. The plans, however, are not yet made public, and an Act of Parliament has to be obtained.

#### RAILWAY JOTTINGS.

THE railway and other private Bills deposited in the Private Bill Office, up to 1st inst. (the last day), for the ensuing session, are 174 in all. Of these, however, 19 relate to water companies in the metropolis and United Kingdom, 3 to gas companies, and the remainder to private companies, improvement of towns, roads, and local and personal matters.—Railway communication with Yarmouth, and to Lowestoft, was recently stopped, the sea having partially demolished the works and swept away one of the bridges.—Mr. John Wheatcroft, C.E., one of the contractors for the High Tor tunnels at Matlock, Bath, has taken the contract for the cuttings and tunnel of an extension line from Crooklands to Lindal-lane, on the border of Lancashire.—There is at length a complete rail-roadway over the Menai straits, the second tube having been safely raised to its 100 feet elevation, the whole forming a rigid wrought-iron highway, 18,401 feet long, and between 5,000 and 6,000 tons in weight. The greater portion of the permanent way and rails is laid. The grand approaches are finished, and exertion is being made to have the line complete by end of February, for the first trial trains to go through.—Mr. Neville, the English engineer, has submitted a design for a railway bridge over the Rhine at Cologne. It comprises a double line of rails, a road traffic way, and way for foot passengers, on 12 piers, leaving 13 openings of 100 feet each.—Arrangements, we understand, have already been made for running one through train from London to Paris, with its return train to London every day, in ten hours.—The Senate of Lubeck have given notice that they will be ready to receive tenders for delivery, free, of 3,000 tons of English rails until 4th February next. The first half to be delivered on 1st June next, and the remainder between 1st September and November. This contract will, it is thought, be followed up by many others for the completion of unfinished lines in the north of Europe.

#### INTERIOR DECORATION AT MANCHESTER.

THE UNION CLUB.

SOME time ago the Union Club of Manchester determined upon a general "white-washing," certainly not before it was needed, but "bad times," that antique cry, had hitherto been an excuse for keeping down expenses, so when trade revived "a reviver" was determined upon in this meeting place of merchants, and the old dose of friendly drabs seemed to be in a fair way of being again repeated in the dining-hall of cottonocracy, but by some lucky turn of the die it was not cast in that direction, and polychromy turned up instead. This dining-hall of the Union Club is a very noble looking and well proportioned, and not least in estimation, well-lighted apartment, some 50 by 25 feet in the floor, and of a judicious height, though the ceiling cove is somewhat heavy, from its lines not blending well with the lantern in the roof. Altogether, however, one could scarcely wish for a better field for decoration, and the opportunity was judiciously seized upon by the pioneering few, to give a lesson in art to the slow-going many. Tremblingly alive to the responsibilities of their trust, and having the fate of the varnished (!) frescoes at the Town Hall before their eyes, the devisers of this essay in polychromatic decoration went very modestly, but at the same time fairly about their work.

The scheme of decoration is a series of panelling from the cove to the surbase, the pilasters between which are decorated by Arabesques, much in the manner, but more



subdued in tone, of those effects for which La Chaise de Paris is so famous. Medallions of great unity in design are introduced; these represent the hours, the months, and zodiacal signs. The surbases are dark, and give an indication of Pompeian treatment, without losing style. The cove is divided into compartments: these are filled with allegorical paintings, and some good imitations of sculpture. Thus we have the cardinal virtues, Justice, Fortitude, Prudence, and Temperance, in the angles; the centre compartments on the three sides are filled with figures of Architecture, Painting, and Sculpture, and the remainder with the Muses, "the ever-tuneful nine."

There is a strong German feeling about the relief of the cornice, and instead of the ever-lasting honeysuckle and lotus, we have arrangements of the poppy and convolvulus, and an original treatment is adopted in dropping portions of the ornament over the moulding of the fascia, and some distance upon it, thus destroying the usual dead line with a good effect. As a whole the colouring is nicely balanced and harmonious in effect. The cheerful aspect of a room for refectory is well preserved, and there is warmth without darkness of tone. The whole has been carried out by Mr. Froggott, of Manchester, Mr. George Jackson designing the ornaments, and executing all the relief, whilst the allegorical paintings, cameos, &c., have been executed by Mr. Horner, of London. There is one novelty which deserves notice, which is the dial of the clock, as also that of a wind dial. The ordinary white face and black hoop of figures has been abolished, and an arrangement of lilies springing from a centre introduced, with the stamens arranged and tipped with gold, to indicate the hours.

#### TAX ON VENTILATION. DISTRICT SURVEYORS' FEES.

I HAVE just learned, to my great surprise, for the first time, that the Legislature has taxed any endeavour to obtain fresh air. The Blackheath district surveyor has just made a claim of *twenty-five shillings* as his fee for the insertion of three of Dr. Arnott's ventilators, by one of which a close, unhealthy workshop has been rendered comfortable and wholesome. Now, I do not for one moment assert that the advantages derived from them are not worth all the money to those who have it: but it must be remembered, Mr. Editor, that a poor man, who can with difficulty muster the price of a ventilator, will hesitate very long before he pays twice its cost to any man to obtrude himself in his house to supervise its fixing, which we all know to be a farce. What the law may be I do not know; but I have seen Dr. Arnott himself and two of the largest manufacturers, and they assure me that even the most *anxious* of the surveyors in their districts have never yet condescended to make such a claim. To talk of ventilation is absurd, if you cannot make a hole of 5 inches by 9 inches without half-a-guinea fee to this gentleman, who kindly troubles us with his presence to do nothing.

As Dr. Arnott observed, it is not a question of fee or no fee, but of ventilation or no ventilation: if it be legal, what a glorious triumph it will be for death, pestilence, and fever.

They have lately, one can fancy, looked more ghastly than usual, as book after book was published, and lecture followed lecture, advocating sanitary improvements; but now (if this be true), let them revel freely once more in their congenial home, the close sickly dwellings of the poor. They are sanctioned by Act of Parliament,—they are under the peculiar protection of Mr. Badger, and such other of his colleagues as have been or may be induced, by love of fees, to follow his example.

Mr. Chadwick may, in the next editions of his fever maps, extend and deepen the shadows of devoted districts, not according to the drainage and sewerage, but the humanity or selfishness of the district surveyor: let the white unsullied purity of the paper represent the practical Christian principle of the one,—and dark, solemn, mournful tints the greediness of the other.

Pray, Mr. Editor, do tell us how the law stands, that we may either at once legally contest the claim, if possible, or prepare to agitate

for the removal of a restriction so absurd, impolitic, and unchristian.

Blackheath.

WM. VOLLER.

\* \* We are disposed to consider the demand illegal,—although we know what may be said in support of a contrary opinion. The official referees, we feel confident, judging from their adjudication in other matters, would not sanction it.

#### LANDING PIERS AND TIMBER BRIDGES. INSTITUTION OF CIVIL ENGINEERS.

ON the 15th instant—Mr. William Cubitt, president, in the chair—the paper read was "An Account of the Blackfriars Landing-pier," by Mr. F. Lawrence. The pier commences on the Middlesex side of the river, to the east of Blackfriars-bridge, at Chatham-place, and continues parallel to the bridge, and at a distance of 40 feet from it, for a length of 185 feet. The body of the pier (exclusive of the head) is supported on four piers, two of which consist of a single row, and two of a double row of piling, forming three spans of 50 feet each, and having about 8 feet headway under them at high-water. The floating barge, or dummy, on which the passengers land, is 100 long and 25 feet wide, rising and falling with the tide, in grooves at each end, formed by piles and protected by dolphins. The total cost was about 4,000*l*.

The next paper read was a "Description of a timber bridge erected over the river Ouse, on the line of the Lynn and Ely Railway," by Mr. J. S. Valentine. The total length of this bridge was 450 feet, divided into eleven bays, ten of 30 feet span each, and one over the river of 120 feet span on the square, and 121 feet 6 inches on the skew. This river-opening consisted of three laminated timber bows, resting upon stone piers, the material for which was procured from the new Leeds quarries. The dimensions of the bows were—length of chord, 121 feet 6 inches; versed sine, 14 feet 2 inches; and their depth 3 feet 8 inches; the width of the outer bows was 2 feet 2 inches, that of the centre bow 2 feet 9 inches. They were formed of fifteen layers of 3-inch deals, abutting upon a cast-iron plate, bolted to the tie-beams, which consisted of two whole timbers scarfed and bolted together. Each tie-beam was suspended from the bows by thirteen wrought iron rods, 2 inches in diameter, and between these diagonal struts were fitted. Transverse joists, notched on to the tie-beams, extended across the whole width of the bridge, and on these the rail bearers were laid, the intervening spaces being filled with 3-inch deals, laid longitudinally. The total cost of the superstructure was about 3,744*l*.

#### RESTORATION OF POWICK CHURCH, WORCESTERSHIRE.

POWICK CHURCH, three miles from Worcester, has for some time past been under the process of restoration. The building consists of chancel, nave, with aisles, north and south transepts, and western tower.

The western gallery has been removed, and the fine tower arch thus opened to the church. The flat plaster ceilings to nave and chancel have also been taken down; and the original open timber roofs above have been restored: the effect of the nave roof is excellent; there are no principals, all the rafters have collars and braces, forming in all seven cants. That to the chancel is not so good, being disfigured by ugly tie-beams. It is to be hoped that the transept roofs (which are similar to that in the nave) will also be brought to light by the removal of the plaster. The whole of the interior of the church has been thoroughly deprived of its whitewash, and every joint in the masonry has been pointed with bright red mortar; but the stonework being in random courses, the effect is not much to be admired.

The nave and aisles were fitted up with open benches previous to the present restoration; they have been slightly improved, and stalls added to the chancel. This portion of the building was not complete when we were there. A new chancel arch has been erected. The rood-screen will remain; and screens have been put up between the transepts and nave, also at east end of north and south aisles.

The north transept will not be seated; the south one will have a third of its area covered with children's seats,—the organ, with screen-work on each side dividing them from the remainder of the transept, which will be used as a vestry,—an objectionable arrangement, except as a temporary measure. The external doorway to it has been made in the east wall. We may mention, that so far as we remember there is no original doorway in an eastern wall in any old church, cathedral, or abbey. The pulpit of stone has been erected west of the transept arch on the south side; all those, therefore, who will be behind the worthy vicar during his sermon, will hear but little.

The work has been carried out under the superintendence of Mr. Clacy, architect, of Reading.

The pulpit and reading-desk want general effect. It is better to leave work plain than to cover it with enrichment which is without light and shade, and therefore invisible at a short distance. Before carving, it should be remembered that it is necessary to have some good thick stuff to work upon.

The contractor was Mr. Bullock, of Worcester.

#### Miscellaneous.

EXHIBITION OF THE WORKS OF INDUSTRY OF ALL NATIONS.—The Royal Commissioners, at their first meeting on the 11th, were of opinion that the contract with Messrs. Munday, which had enabled the proposal to be brought to its present state, and had guaranteed the carrying into effect of the proposed exhibition, was of a strictly reasonable—and, indeed, of a very liberal—character; but, in accordance with what appeared to be the wishes of the public, they decided to give notice of its termination, and to place the whole undertaking upon the basis of a general subscription. A wag might say, "*Sic transit gloria Munday*." We quite agree, however, in the opinion that the contract was a very liberal one on the part of Messrs. Munday. Notwithstanding the snub given to architecture by the omission of the President of the Institute, it is to be hoped there will be a *distinct compartment* in the building for matters architectural and relating to building; and it is to be hoped that the art will be well represented on the occasion: it may very well be so, there being so many curious modern appliances calculated to attract attention, which may be by such means rendered more known and available. Such a collection, of itself, we long ago suggested. As to the general management we continue to receive numerous letters, and may perhaps find an opportunity to consider them. The council of the Society of Antiquaries, we understand, have *refused* to concur in the proposed exhibition of ancient art by the Society of Arts.

SALFORD FREE PUBLIC LIBRARY AND MUSEUM.—The formal opening of this important prototype of, we hope, a host of successors, took place on Wednesday week, when the whole, comprising already upwards of 5,300 volumes, several thousands of specimens in natural history and works of art, &c., was handed over by the committee to the corporation for the free use of the public of Salford for ever. At the meeting Mr. Brotherton, M.P., took the chair, and after the Dean of Manchester had expressed his approval of its objects, the chairman addressed the meeting, and explained the origin and designs of the institution, and the varied advantages which it would afford to the working classes for their improvement and recreation. The library is to be open every day and evening, and the receipt of a large number of duplicate copies of standard works has decided the trustees to put the finishing stroke to the value of the institution—by making it a lending library. The reading-room is provided with a series of maps. A portrait of Mr. Brotherton, who may be said to have been its founder, has been placed in the hall of the mansion, in Peel's Park, where this exemplary institution has been established. Besides the chairman, various speakers addressed the opening meeting, among whom were the Mayor of Manchester with several aldermen; and in the evening a tea party was held in honour of the morning's proceedings, and various appropriate resolutions passed.



**MECHANISM FOR SWEEPING MAIN SEWERS.**—An obliging correspondent, in a communication dated from the Athenæum Club, and signed "John Stapleton," proposes turning the pressure of the atmosphere to account in sweeping out main sewers, and minutely describes, with plan and segment, a piece of mechanism for the purpose, with vacuum tubes and buffers, communicating, in a loft above a middle ceiling in the sewer, with an axle, running on wheels along a pair of side rails, and working a sweep in the sewer below through a protected aperture along the ridge of the middle ceiling. The sweep is to be surrounded with brush-work or caoutchouc, and provided with a joint or hinge, enabling the pressure power in one of the tubes to run it easily back to the head of the sewer after sweeping the contents downwards by the power of the other tube. What has been done on a railway our correspondent thinks may be done in a sewer, and though the expense might be great, he regards the object as one of importance no less great; but to a certain extent he calculates that the manure thus swept along without undue dilution, and hence more portable and valuable, would be a set off against the expense; and at any rate, he submits that such a drain would be far more useful than some of the railways constructing or constructed at a much greater cost. In the application of this invention to the metropolitan drainage, Mr. Stapleton suggests its use only in two principal drains running parallel with the Thames, one on each side the river,—the north running, for example, from the fields above Chelsea, down to the marshes below Blackwall, and terminating in a reservoir, into which the sewage might be swept by the pressure employed, and from which its liquid portion might be conveniently tapped.

**WELSH BUILDING STONE.**—A correspondent, travelling in Wales, expresses his surprise that architects should overlook the Sutton stone, found near Aberthaw, and sends an extract from Moses's "Treatise on the Coalfield of South Wales," in support of his opinion that it might be usefully worked. That writer says, "It is generally known as the Sutton stone, from a quarry having been opened into it at a place called Sutton (Southerndown?), near the mouth of the river Ogmore. It was at one time extensively shipped to neighbouring ports, and, in some instances, exported to the Continent. The component parts of this stone appear to be sandstone, quartz, carbonate of lime, with slight traces of galena to be observed occasionally. We must consider it, therefore, a conglomerate, and, like many rocks of that character, it changes its colour, which, as seen in the quarry, has a brownish cast, but on being exposed and subjected to the action of the atmosphere, becomes nearly white or bleached. It is capable of being dressed to any form, with nearly as much ease and freedom as the best Bath stone, and weighs from 130 to 137 lbs. per cubic foot." In evidence of its durability, he points to its appearance in the white chequered quoins and ornamental parts of several of the ecclesiastical and baronial structures of Glamorgan, built by Llys, an eminent architect of the twelfth century.

**SEWERAGE OF ST. THOMAS, NEAR EXETER.**—The local board advertised for plans for drainage, &c., to be sent in on the 5th inst. A correspondent states, that on the 8th they informed competitors that, "the General Board of Health not having furnished the St. Thomas's Local Board with the scale for a sewerage map as mentioned in the advertisement in November last, the said local board will not now require maps according to the terms of such advertisement." He adds, "Pray, are they not bound by the advertisement? it appears to me so, and that those gentlemen who have sent in plans should hold them to the agreement."

**SUPPLY OF WATER FOR LIVERPOOL.**—The whole question of the supply of water for Liverpool has been referred to Mr. Robert Stephenson, who has been taking evidence there during the week.

**BUILDING WORKMEN'S PROVIDENT AND FRIENDLY SOCIETY.**—A circular has been issued to most of the leading builders in the metropolis inviting a public meeting on the evening of the 25th inst., at Exeter-Hall, to discuss the general merits of four propositions resolved on by the committee.

**WHY OPERATIVES SHOULD HAVE A SCIENTIFIC KNOWLEDGE OF THEIR OCCUPATIONS.**—1. *They will perform their work better, and with less labour.* Science and philosophy are ministering spirits to the sons and daughters of toil, and are destined to shorten the hours and lessen the fatigue of their employment, and thus give them leisure for intellectual and moral pursuits. We believe in a time not far distant when every operative and labourer shall be a man of scientific research and philosophical acquirements. 2. *The immense pleasure arising from his knowing the "why" and the "wherefore" of his calling will allure him to study its principles.* We were all made to be philosophers. Every mind is inquisitive; and the gratification of this mental appetite is one of our highest luxuries. 3. *Science can raise the working man in various ways.* His master, appreciating his skill, will advance his wages. An intellectual operative, also, may take his position among the higher order of minds in the country. As a citizen he belongs to an aristocracy too lofty to be the creation of monarchs. His science may eventually place him side by side with our Franklins, Arkwrights, and others. Study also will make all the abstruser branches of knowledge easy, and even religion will be seen without a veil; so that he shall become socially, intellectually, and morally great.

**BUILDERS' BENEVOLENT INSTITUTION.**—Let us once more draw the attention of our readers to the fact that the committee of this excellent charity have announced the second anniversary ball in aid of its objects to come off on 31st instant. We need scarcely say, that we are anxious as ever that such an attendance be given to it as shall leave nothing to regret or desire when the hope of a good turn out shall have merged in its own fulfilment. This is certainly one of the pleasantest of all ways of assisting our poorer brethren, whatever the grave and dignified orientals, who do all their dancing by deputy, may insinuate; and certainly the consciousness of thus working good, even though it were more a toil than a pleasure, will be not the less gratifying that the exertion is countenanced by such as the Marquis of Westminster, the Earl of Carlisle, Earl Manvers, Lord Robert Grosvenor, Lord Dudley Stuart, Messrs. Cabell, Cubitt, Salomons, Col. Wood, and many other good men and true.

**COST OF ANCIENT WORKS OF ART.**—The Berlin correspondent of the *Times* states that the Prussian Minister of Education has offered a prize for the best essay on the cost of public buildings and works of art erected by various states at different epochs,—particularly monumental works. The cost of some of the immense works of antiquity has always been a problem, and it is doubtful whether any means now exist for ascertaining it with an approach to certainty. The builder's "estimate" for the Coliseum would now be a curiosity. The motive for the inquiry is stated to be a desire to know what the money value of the artists, architects, or sculptors may have been among the ancients.

**THE WHITTINGTON CLUB SOIREE.**—On Tuesday evening, the 15th, the members and guests of this institution mustered very strongly. Mr. Lushington, M.P., presided; a vocal entertainment was given; and dancing finished the night. The rooms displayed a large and interesting collection of works of art and science. M. Du Jardin's printing telegraph, which requires no battery, exhibited by Mr. Whishaw, excited deserved interest. We may observe that the reading-room and entrances were painted for the occasion by the Paragon Paint Company, by whose process the usual offensive odour is said to be avoided. We know nothing of the material, but certainly found no smell.

**INTIMIDATING WORKMEN.**—At Bow-street, on 15th inst., a workman, lately employed by Mr. Walker, organ builder, of Francis-street, Tottenham-court-road, was sentenced to six weeks' imprisonment for intimidating other workmen from continuing in same employment. At the entreaty of Mr. Walker, however, and the complainant, Mr. Jardine withdrew his judgment for a week, under bail.

\* From the *Working Man's Friend*, a very cheap new miscellany, which promises to be useful.

**PROJECTED WORKS.**—Advertisements have been issued for tenders by 8th February, for the erection of a casemated battery and magazine in Guernsey, for the Ordnance; by 28th inst., for the completion of two houses at Holloway; by 30th, for about 100 wooden posts, and fixing same, at Colney-Hatch-lane; by 26th, for the erection of two cottages near Burgess-hill station, on the Brighton and South Coast Railway; by a date not specified, for the formation of a street at Birmingham; by 29th inst., for the erection of a public room, reading room, &c., and the formation of a sheep-market, at Knighton, Radnorshire; and by 29th, for the supply of timber, iron, copper, brass, and other stores, for the Newcastle and Carlisle Railway.

**LAXTON'S PRICE-BOOK FOR 1850.**—Mr. Laxton's price-book, like a man getting well to do in the world, grows more and more portly. It contains now upwards of 8,000 prices, and a large number of useful memoranda. The Buildings Act is also given, and the modifications of that Act authorized by the Woods and Forests. We are asked about once a fortnight to recommend a price-book. This notice of Mr. Laxton's must serve for now and hereafter.

**BRADSHAW'S GENERAL RAILWAY DIRECTORY** appears to be really what it is called, a "Shareholder's Guide, Manual, and Almanac." It shows the rise, progress, and present position of all the railways in the United Kingdom, and of such of the foreign railways as have been most known in this country.

**"THE GERM,"** a new monthly publication,\* the main object of which appears to be to provide a channel for the development of thoughts and principles, is edited by some young artists who, if their powers be equal to their enthusiasm and desire, will one day be in the first rank. The first number contains, amongst other pieces, a thoughtful paper on "The Subject in Art," and has an etching by Mr. Holman Hunt.

**STATE OF THE STREETS AT THE EAST END OF LONDON.**—Having said a word for Clapham, perhaps you will kindly let me call the attention of the authorities in this portion of the "modern Babel" to the disgracefully muddy condition in which the streets are allowed to remain, for many days together, after rain or thaw. The principal thoroughfare from the Mile-end-road to the Commercial-road, during the period mentioned, is nearly ankle-deep in mud, and the western part of Oxford-street, Stepney parish, is a complete bed of mud. A road-scraper is seldom seen here: when, however, three or four are sent out, the mud is scraped to the sides of the streets, where it lies for a length of time, perhaps for sale for building purposes. The opinions as to whose duty it is to cleanse the streets are various. Some hold that the trustees are responsible; others say the surveyors are the proper persons; and a third class consider the parochial authorities to blame in not taking up the matter. In this conflict of opinion, I am sure that nothing short of the power of the press will ever settle the question effectually.—Z. W. D.

**THE IRON TRADE.**—Prices have made no advance with the opening year, although the masters are hopeful as ever as to future prospects. The nominal rates desired by them to represent the current prices in the trade are,—bars, 6*l.*; rods 6*l.* to 6*l.* 10*s.*; hoops, 6*l.* 10*s.*; sheets, 7*l.* 10*s.* In South Staffordshire and Worcestershire, towards the close of the year, there were 58 out of 147 furnaces out of blast. In Scotland, however, we understand, there are only 27 out of 140 unemployed, and four new ones in course of erection.

**INTERIOR VIEW OF MAIDSTONE CHURCH.**—With respect to a remark in your notice of my "Restored View of All Saints' Church, Maidstone," in your last impression of *THE BUILDER*, permit me to say that the title on the print expresses it as restored to the date of its completion; when, of course, the rood formed a part of the furniture of the church. The print is published as completing a work I wrote upon the antiquities of the church in 1845. I deem it desirable to set this right, lest any should misinterpret my motive in introducing Popish symbols.

JOHN WHICHOORD, JUN.

\* Aylott and Jones, Paternoster-row.









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Two or three hundred references can be furnished on application; only a few can be mentioned here, viz.:

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Christ Church, Westminster.  
Trinity Church, Brompton.  
Old St. Pancras Church.  
Trinity Church, Hoxton.  
St. Vedast's, Fosterlane.  
Portman Chapel, Baker-street.

The Parthenon, Oxford-street.  
National Field Office, Moor-street.  
Piccadilly, Knightsbridge-street.  
New Exhibition, Crystal Palace.  
Religious Tract Society, St. Paul's Churchyard.  
Mr. Parker, West Strand.

Mr. Gilbertson, Lodgegate-hill.  
Messrs. Perkins and Sons, Fleet-street.  
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REDUCTION in the PRICE OF SLATE.—MR. MAGNUS has the pleasure to publish the following reduced prices for Welsh Slate Slabs of the finest quality, with sawn 12 in. and planed 14 in. faces.

	Thick.											
	1 in.	1 1/2 in.	1 in.	1 1/2 in.	3 in.	3 1/2 in.	4 in.	4 1/2 in.	5 in.	5 1/2 in.	6 in.	6 1/2 in.
Under 1 ft. long, or 3 ft. wide	d	d	d	d	d	d	d	d	d	d	d	d
Ditto 3 ft. do. or 3 ft. do.	1	5	7	8	10	12	13	14	15	16	17	18
Ditto 6 ft. do. or 3 ft. do.	4	6	8	9	10	11	12	13	14	15	16	17
Ditto 7 ft. do. or 3 ft. do.	5	7	9	10	11	12	13	14	15	16	17	18



# The Builder.

No. CCCLXIV.

SATURDAY, JANUARY 26, 1850.

**G**ARL DE GREY presided on the 21st at a very full meeting of members of the Institute of British Architects and visitors, when, amongst other matters, letters were communicated from corresponding fellows at Vicenza and Naples, acknowledging the honour of their election, and offering to afford facilities to members visiting their cities, with letters from the honorary secretary.\*

Mr. Donaldson read a paper by Mr. H. Roberts, "On the Arrangement and Construction of the Dwellings of the Labouring Classes." Referring briefly to the overcrowded state of parts not merely of the metropolis, but of our provincial towns, the writer commenced with some general observations on points to be attended to in the construction of such dwellings:—they should be dry and well-ventilated; the principal living room should contain not less than 140 feet superficial area, and the parents' bed-room 100 feet. The height of the rooms in the country should not be less than from 7 feet 6 inches to 8 feet; and in towns 9 feet. Every room should have an opening near the ceiling for the escape of vitiated air: his experience was not favourable to Arnott's valves in the smoke flues; he preferred constructing a distinct flue; he had found the smoke otherwise return into the rooms. An enclosed porch was advantageous; if the windows had casements (for which zinc was the best material), they should open outwards, as it was otherwise difficult to keep out the rain. Commencing, then, with the establishment of "The Society for Improving the condition of the Labouring Classes" in 1844, he described *seriatim* the buildings erected by that society in the Bagnigge Wells-road, the model lodging-houses in Charles-street,—George-street, St. Giles's,—Hatton-garden, and Streatham-street, Bloomsbury; the Birkenhead-buildings; the buildings in St. Pancras, by the "Society for the Improvement of Workmen's Dwellings;" the Artizan's Home, Spicer-street; and Lumsden's Model Houses in Glasgow;—every one of which has been already fully described and illustrated in our pages. In the George-street Lodging-house, he mentioned, as proof of the effect of improved dwellings on health, that there was not a single case of cholera amongst the 104 inmates. The Streatham-street house has external galleries around a quadrangle, approached by a common staircase, by which arrangement, as we understood the paper, 70l. or 80l. per annum were saved in window taxes. The floors here are of tile arches: the extra cost of thus fire-proofing was only 12 shillings per cent. over the cost of ordinary construction.

\* Amongst the visitors in addition to those mentioned as taking part in the proceedings were,—Sir James Clark, Dr. Arnott, Mr. J. C. Colquhoun, Dr. Milroy, Major Beilcar, Dr. Quin, Messrs. Austin, Bridges, J. Christian, Wilks, C. H. Smith, Snell, H. Eryon, Copland, Fozgo, West, Dillon, Rodson, Lloyd, Robins, Wales, Hampshire, Webb, Hepburn, Roe, Eddrup, Porter, Higginbotham, Howle, Granger, Scargill, Laxton, Rogers, Robinson, White, C. H. Griffith, Quin, &c. &c. Amongst the members present were Messrs. Scoles, Bellamy, Nelson, Donthorne, Mcnatta, Parker, Knowles, Kendall, A. Mee, Major Griffith, Cole, Eales, Gibson, Beck, Bull, Sibley, Mylne, Hemman, Williams, Clayton, Oliver, Judge, Fowler, Garling, Howell, Burrell, Nichol, Hencker, Billings, and Randall.

The society, he said, propose erecting another pile of town-buildings with funds provided by thanksgiving offerings. The arrangement of the Birkenhead-buildings was very objectionable: when he visited them they were tenantless, which he attributed to their gloomy appearance, through being constructed in rows so close that the sun could not penetrate. For the St. Pancras building 152l. per annum are paid for window taxes. In Lumsden's buildings, Glasgow, there is one window where there ought to have been three, and probably would have been but for the window tax.

The writer then proceeded to speak of labourers' cottages in the country, and quoted a passage from Mr. Dixon's "Life of Howard" already pointed out by us, as showing how much improvement may be effected by one man.

As to the design to which the Royal Agricultural Society had awarded their offered premium of 50l., and which is engraved in the last July number of their journal, all he would say was, with one competent writer who had reviewed it, that he hoped no such cottages would be erected.

The recommendations to be attended to in building labourers' cottages, the writer said, are a dry foundation—gravel is better than clay,—good water,—southern aspect. Every cottage should stand on one-eighth of an acre of land. The water well should be away from the drains and manure tank,—the latter should always be provided. The materials depend on the locality. If 9-inch brick walls be used, they should be hollow, and would thus be both drier and warmer. He had used a wedge-shaped hollow brick, made by the tile machine; nine of these fill the same cubic space as sixteen stocks: 25 per cent. of mortar is also saved. Chalk, hardened with silicate of potash, may be used for walls. If of concrete, walls should be 12 inches thick; if of stone, 18 inches. Partitions should be of brick: tiles for the roof are better than slates: hollow bricks make the best floors. An air-flue should be formed for ventilation, and the upper room may be warmed by a 2½-inch pipe from the fire below. The omission of inside plastering on the walls he considered saves nothing, as it necessitates better brickwork, and it gives an appearance of discomfort. A tank should be formed to receive the water from the roof, and when it is desirable to disguise the outbuildings this may be done, *inter alia*, by casing them with split logs, with upright logs at the angles, thus giving them the appearance of a wood-stack.

Mr. Sydney Smirke, at the close of the paper, made some observations on the subject. The improvement of the dwellings of the poor was not a new consideration with him; it was his hobby before it was so publicly mooted as now; and he was first led to entertain the idea that houses for the poor might be profitably erected, on hearing that an individual who enjoyed the luxury of a private carriage, and was giving his son a university education, did so on the profits of some low lodging-houses in St. Giles's. The poor pay more than the rich for lodging and food; from Bond-street to Cheapside a more extravagant shop could not be found than the chandler's, where the poor obtained their food. These shop-keepers were real political economists; they bought in the cheapest markets and sold in the dearest. Truly the poor fleeced the poor; and it was incumbent on the more affluent classes to secure for them food and lodging on fair terms. The latter seemed in a fair way of being obtained.

As to the former, he did not propose that a shop should be opened by charity to compete with private traders, but he did think that in every parish it would be well to have a Store, where the staple commodities of the poor might be sold at prime cost, to such as obtained certificates that they were really necessitous objects. The commodities obtained here would serve them as a standard of goodness. As to the construction of houses for the poor, it must be admitted that the poor were, as a class, destructive tenants. All the fittings should be as indestructible as possible. He was decidedly opposed to the use of internal plastering: it was speedily broken, and gave a dilapidated appearance. Cast-iron plates should be substituted for stone hearths, and the locks and fastenings should be simple and strong: a new lock for the purpose was needed.

In reply to a question by Mr. Mayhew, as to the price of the hollow bricks mentioned in the paper, and the means of cutting them, Mr. Roberts said they might be made in the country, he thought, for 40s. per thousand, and in some parts for 30s., exclusive of duty. In Streatham-street, where he had used them, no duty had been paid, because they were employed merely for the roof and the floors; if used in walls they would pay duty. In order to cut them, a certain number should be impressed by a string where the division was needed, before burning.

Mr. Chadwick remarked—let the size of bricks be what it might, they would pay only double duty.\* He doubted the statement that floors and roofs constructed of tiles would be more expensive than by the common mode, and said Mr. Rawlinson had made calculations, shewing the former would be cheaper.

Mr. Rawlinson said he had recently been through the northern districts of England, and had found that, through the publication in THE BUILDER of a paper he had read before the Institute some time since, on hollow bricks, attempts at hollow construction were being made in various places. The difficulties were purely imaginary, both as to making and cutting the bricks. If not marked in the way mentioned, they might be cut at any part, by a slater's pick. The hollow bricks might be made at 30s. per thousand, exclusive of duty, and each would fill the place of three common bricks. The enforcement of duty stood greatly in the way of improvement. For cottage floors these hollow bricks were invaluable.

Capt. Buller, a visitor, said that he had built some cottages at 100l. a-pair, with hollow tiles. He found that the joints of 6-inch hollow walls would not keep out driving rains. The hollow tiles made very dry floors, but had the disadvantage, in his case, of harbouring ants. The tiles cost him in making 50s. a-thousand: each occupied the place of four common bricks.

Mr. Godwin said, a very important fact had been brought before them incidentally in the course of the paper, and ought not to be passed over: he meant the very injurious results of the tax on light. They had been told of one building erected by the charitable for the improvement of the health of the poor, paying 160l. per annum window duty! and of another where proper ventilation had not been provided because of this most injurious imposition. It was not necessary to point out its evil effects to any there; they knew from their own practice that it interfered with design, with con-

\* A "chambered brick" was exhibited, which filled the place of fifteen common bricks, and some one said this was truly a "closer."



struction, with convenience, and with health; but it seemed that it was necessary to do so to Ministers, who were very hard of hearing. He had reason to believe, however, that if they were now appealed to from without they might be led at all events to mitigate the tax, and he trusted that all who were present would aid in bringing this about.

The discussion was closed by an earnest speech from a clergyman present, bearing witness to the great importance attached by the clergy generally to the present endeavours to improve the dwellings of the poor.

In connection with the subject of cheap construction, a model of Melling's sash-window, wherein the upper and lower sashes are connected by racks and pinions, and one sash is made to balance the other, was exhibited.\*

Earl de Grey, in terminating the business of the evening, said he wished to make a few observations in connection with the proposed national exhibition in 1851. It had been suggested that he ought, as their president, to have been a member of the Royal commission; and it was inferred that, by the omission of his name, the Institute had been slighted. He wished, however, fully to exonerate from this charge the parties who selected the commission. Mr. Labouchere had written to him, requesting him to serve in the commission; but his health being bad, and having an unwillingness to undertake anything he could not efficiently perform, he had declined the office. From what he had heard he thought the profession might consider that they had been neglected, and he had come to town that day on purpose to explain the circumstances to them personally. They might be satisfied they would have a most efficient representative in Mr. Barry.

We are glad to have this ready response to our observation on the subject. We have the greatest respect and regard for the president, and would not willingly question any step taken by him. We must be permitted, however, on this subject to say, that if his lordship was invited into the commission as president of the institute, we really think he ought, in justice to the body, to have assented.

#### PROFESSOR COCKERELL'S LECTURES ON ARCHITECTURE, AT THE ROYAL ACADEMY.

CONTINUING his comments on Vitruvius, the professor, in his third lecture on the 17th, observed that the remainder of the first book treated on the military defences of a city, the collocation of public buildings, the choice of healthy situations,—the most of which, now obsolete, would be unprofitable to dwell upon; but the second book, treating as it does methodically of all the materials of the art (which were not even now essentially changed) was well worthy the careful attention of the student. Relating to the execution of building strictly, this department of the art could not be admitted to our present course. But it might be suggested that the second book would form an admirable text for a valuable course of practical instruction in building; taking also into review the third and fourth books of the great Alberti (1450 A.D.), and the practical chapters of Phil. de l'Orme,—these, united to the vast accessions of practical knowledge which had been developed by the great engineering and architectural works executed in England within the last forty years, would constitute a useful body of ancient and modern practice.

\* At the next meeting, a paper will be read by Mr. Angell, on the "Works of Vignola;" and at other following meetings, papers by the Rev. Mr. Burgess, on the "Castle of St. Angelo, Rome;" Mr. Tite, on "Geology with reference to Architecture;" Mr. C. Fowler, on the "Ornamental Brick work of Germany;" and Mr. Knowles, on the "Use of Cement externally." The drawings submitted in competition for the Institute medals will be exhibited in the rooms until the next meeting, when the report of the council upon them will be read.

From Alberti especially we should gather the methods of those middle ages in which such vast and novel structures had been executed, in which an economy of means was employed equally unknown to classic times, and to our own; in which latter, such lavish expense in materials and workmanship were often forced by our timidity upon the employer. It is certain that Sir C. Wren had well studied Alberti, and had often adopted the inexpensive method of foundations pointed out by him in his third book. This method had been discovered in opening the foundations of the church of St. Bartholomew, and the Exchange, rebuilt by him. Indeed, that extraordinary man would never have adorned his country with such extensive magnificence, had he been constrained by the prodigal habits of the present day in respect of foundations.

The authority of the ancients, and their regard to site, aspect, sun's rays, and natural ventilation of buildings, now regarded as obsolete, and superseded by reliance on artificial means, were well worthy the respectful study of the young architect, and would be found entitled to our gravest consideration.

It was in the third book that Vitruvius treated on the paramount element of beauty in architecture—proportion. The notion of the Greeks coincided entirely with the Mosaic declaration that man was made in the image of his Maker; and it was by analogy with the human form that the proportions and character of the orders were derived in the precepts of Vitruvius. The professor illustrated the justness of this derivation of all proportion by contrasting the baboon with the man, and again by comparing the horse with the donkey,—the profile of Apollo with that of the vulgar nature,—the Palladian front with the warehouse,—in all of which he showed that justness of proportion arose from the subtle and delicate variety and relation of quantities,—whereas ugliness was always accompanied by equality of quantities, and a seeming clumsy disregard of that fine adjustment which is traced in the highest order of animal and vegetable creation.

The three distinctive characters of Greek orders, the virile, the delicate, and the mean between them, attributed to the Doric, the Corinthian, and the Ionic, were analogous to the diversities so dramatically figured by the prince of poets, Homer, when he presents the delicate Helen describing to Priam from the walls of Troy the various characteristic figures of the Grecian host, Ajax, Agamemnon, and Ulysses, in their special proportions; all various and typical of classes, showing by this finely drawn scene the proverbial and popular delight which the Greeks took in the varieties and distinction of character and beauty.

This analogy of Vitruvius had been slighted by those only who had not studied "the human form divine," in the ignorance of which, says Michelangelo, no one can pretend to understand architecture. The professor proceeded to prove this analogy, by showing how, in composing architecture, magnitude and dignity were attained precisely on the same principles that the human figure acquired them, namely, by the employment of many parts comprehended in a single form, and a variety of elements, with a scientific adjustment of their relative proportions to the entire front. Nearly all the great masters had exercised their ingenuity in proportioning the orders, but, as Wren had said, they were not the most important elements of architecture, and it was extremely desirable that the student should endeavour to compose without their aid, and so avoid the hackneyed use of them.

The form and proportions of the arch, the varieties of masonry,—rustic, isodromum, and pseudo-isodromum, were all elements for his consideration. Shinkel had much employed them; even the Gothic, though small stones were its chief characteristic, might furnish hints: in a large entrance gateway, to building of mediæval character, Shinkel had adopted the voussours of the eleventh and twelfth centuries, on each of which it had been the practice to carve a subject, before the stone was placed in the building, as at Rochester, Malmsbury, and elsewhere.

On each of these he had carved the insignia of the guilds and noble families of the locality with excellent effect. As in nature, so in art,

the elements nicely considered, and a special character and development given to those which are most prominent, may at once convey beauty with character and use. The boar, the tiger, the camelopard, or the antelope, though perfectly distinct, have each their peculiar character and beauty, accordant with their uses and habits.

Circumstance, material, use, and climate would always furnish sufficient motive to the ingenious and inventive mind. Thus, in the door mentioned, and those often employed in the middle ages and revival, we find in its appropriateness of decoration and character, an ample apology for the plainness of the rest.

Climate may often do this. In England, for instance, the window is the great characteristic; and so in the north of France, under Phil. de l'Orme, they grew into the most important features, and might be called the Fenestral order. The binned windows used in Mr. Hope's new house, Piccadilly, were commendable in this respect, and conveyed the idea of abundant light and large admission of sun's rays. Not so in Italy, where the exclusion or modification of light, by small windows, and the large admission of air, by large doors, were proper,—the latter affording also those delightful vistas which this colder climate does not permit.

Alberti, in his sixth book, justly complained of the obscurity of Vitruvius, and the undecorated style of his writing. "So," says he, "that he seems to write Greek to the Latins, and Latin to the Greeks." It would be found, therefore, by the student, most instructive and delightful to consult the eloquent Alberti on proportion and on beauty generally. Blondell, in his fifth book, and, indeed, every theoretical master, down to Ram Raz, had written on proportion as the fundamental principle of all good architecture; and, lastly, Quatremere de Quincy (in his dictionary), whose services to the arts, said the professor, could never be too much appreciated, and whose recent loss Europe had to deplore.

He had in this lecture treated the orthographical proportions of orders and elements, and in his next he proposed to consider the composition of those elements.

The professor exhibited a large collection of orders in their variety, and other illustrative diagrams, and a fine drawing of the temple of Jupiter Capitolinus, on the authority of Canina, showing the application of the Diastyle intercolumniation in Corinthian order, executed during the Consulate of Catullus, 260 A.C., and remarked on the importance of the propylon to the scale and effect of the temple.

#### ON THE SUPPLY OF THE CATTLE MARKETS AND THE ABATTOIRS OF PARIS.\*

SOME errors were committed in the dimensions assigned to the different abattoirs, inasmuch as those of Villejuif, Grenelle, and Roule are too large for the necessities of the quarters in which they are situated. The expense of the buildings, as a necessary consequence, was therefore greater than it need have been. In fact, of the cattle killed in Paris, by far the greatest proportion are slaughtered in the abattoirs of Montmartre and Mesnil Montant. The real proportions are—

	Cattle.	Cows.	Calves.	Sheep.
Montmartre ..	42 per 100	34 per 100	43 per 100	50 per cent.
Meuil Montant 39	" 44	" 33	" 33	" 27
Grenelle .....	16	" 13	" 17	" 19
Roule .....	9	" 4	" 12	" 8
Villejuif .....	4	" 5	" 5	" 8

The number of slaughter-houses, that is to say, of the separate divisions, is far from being in this ratio. At Montmartre there are 64, at Meuil Montant 64, at Grenelle 48, at Roule and Villejuif 32 each. Of the 674,048 animals of all sorts killed in 1846, 320,024 were taken to Montmartre, 192,856 to Meuil Montant, 77,678 to Grenelle, 54,138 to Roule, and 28,852 to Villejuif. Each division of the first-named abattoir then sufficed for 5,000 animals, of the second for 3,130, of Grenelle for 1,618, of Roule for 1,691, of Villejuif for 900 only. The three latter are evidently too large for the wants of the several quarters in which they are situated.

Moreover, the abattoirs of Paris were built at a period when this particular kind of build-

\* See page 29, ante.



ing had not been so well studied as it is at present. They are constructed without any regard to economy,—and form, indeed, very important public monuments. Some details had to be altered, some of the first works to be demolished, and yet they were all completed at an expense which enables the town to derive a revenue of about 5 per cent., at the present day, after paying all the expenses of the maintenance and working. The establishments of a similar nature constructed in the departments, profiting by the lessons gained in Paris, cost very considerably less. For instance, the Paris abattoirs cost 128f. per metre superficial over the whole surface, of which the buildings cost 385f. Those of Nantes cost, for the surface of the buildings, 192f. 52c.; those of La Rochelle, 119f. The abattoir of Havre cost, for the whole surface, at the rate of 40f. per metre superficial; that of Caen at the rate of 61f. We may assume, then, safely, that if the town were to construct these buildings at the present day, they would be executed for half the price they cost originally.

The following table gives the most important figures relative to the surface and the cost of the different abattoirs. The first column gives the surface of the land; the second, that of the buildings; the third, the cost of the land; the fourth, the cost of the buildings.

	Metres super.	Metres super.	Francs.	Francs.
Montmartre .....	37,210	10,780	39,537	4,725,028
Meil Montant .....	44,995	12,020	132,764	4,075,487
Villiquet .....	37,200	6,250	54,423	2,408,753
Trocadero .....	32,170	8,790	131,555	3,075,121
Roule .....	23,650	6,250	214,088	2,500,916
Totals .....	165,265	43,095	562,307	16,785,305

The total sum expended was thus 17,347,612f.; but the delays caused by the fall of Napoleon, and the distress of the early years of the Restoration, increased the capital to nearly twenty millions of francs, when the interest is added. The abattoirs were begun in 1811, and finished in 1818.

The revenue of the abattoirs is derived from a payment for every head of cattle slaughtered therein, calculated at the rate of 2c. per kilogramme. It is, therefore, on the average, 6f. 90c. per bullock, 6f. 18c. per cow, 1f. 26c. per calf, and 40c. per sheep. The rent for the *fondoirs* is 1f. the 100 kilos, the melters finding their own fuel. The rent for the triperies is 30c. per tripe of bullock, and 5c. per tripe of sheep. To insure the preference to their own establishment, the town levies a toll, equal to the above, on such meat, fat, or tripe as are killed or prepared elsewhere.

In the year 1847, the receipts from the abattoirs were 1,197,634f. 33c.; the expenses were 137,830f., including *personnel*, water, lighting, repairs, inspectors of police, &c.; leaving thus to the town a clear profit of 1,059,804f., or more than 5 per cent. on the real capital.

An objection has been raised on the score that the transport of the meat from the abattoirs to the butchers' shops must augment the price. This is not really the case to any serious extent, for there are at each of them parties who undertake to transport the meat, in large quarters, for 1f. 50c. per bullock or per cow, 60c. per calf, and 10c. per sheep.

The pig abattoirs are different from those for other animals. The most complete is at Nanterre, where about 40,000 are slaughtered every year. It covers about 2,763 metres superficial, and cost 97,000f.: it consists of sixteen killing places (6 m. 75 c. by 5 m. 50 c.), and sixteen divisions, in which the hair is burned off the animals,—the invariable custom in this country, instead of scalding, as with us. The price for the use of these abattoirs is the same as for cattle—namely, 2c. per kilogram, of meat, or about 1f. 50c. per pig.

**Conclusions.**—The details given above show that the expense of establishing proper markets need not, under judicious management, be so great as to render them bad commercial operations. The present state of the cattle market in London cannot be maintained for many years longer, and it therefore becomes important to arrive at correct ideas as to the best course to be followed. The consideration of the expense is the first, and one of the most important ones. Too much stress cannot then be laid upon the success of similar operations in other countries. We have seen that the

market of Poissy pays 5 per cent. on the outlay, that of Sceaux must do so likewise, to sink the capital in the nineteen years of the lease. Why should not the city of London be as successful? They might easily raise the capital by the sale of the land occupied by the present market, or by mortgaging the ground rents of the new streets to be built thereupon. But the question does not stop here. Smithfield is a moral and physical plague spot in our wonderful London. In the interest of humanity, then, the suppression of its attendant horrors must be insisted upon. Fortunately, such a suppression need not be attended with loss to the public.

The same remarks apply to the abattoirs. In face of the results they have hitherto produced, we rest amazed that the first city in the world should still be without them. The private slaughter-houses of London are, in fact, the severest censure imaginable upon the municipal organization of our country; and, it cannot be too often repeated, a shame and disgrace to our state of civilization. In Paris, on the contrary, they form public works of great beauty, if that word be interpreted as implying fitness with the end proposed. The architecture adopted is severe, noble, massive, without useless detail; all affectation of prettiness carefully avoided. Even the choice of the materials is well studied. The different kinds of stone used are such as best to fulfil the objects their position imposes upon them; their colours are such as to produce the most consistent and picturesque effect. The wide projections of the roofs, the channels formed by the pantries, hold colour, and give a play of light and shade which is the more agreeable, inasmuch as it is produced by simple means, and is at the same time conducive to a useful end.

A question of taste is a stumbling block with the corporated bodies in our countries. The few critical remarks ventured above may, perhaps, be displaced under such circumstances. But there still remains the commercial question; and it is marvellous that no one should yet, in the corporation of London, have found out that there was money to be made by the establishment of abattoirs, which would have improved the health at the same time as the appearance of that centre of all that is good and great, as likewise of all that is vile and detestable in Europe. Let us hope that the public feeling, so justly excited by the ravages of the cholera, will enforce an examination of this question. It is time that the abomination of uncontrolled slaughtering of animals should, like its sister abomination of intramural interment, cease to disgrace our metropolis.

G. R. B.

#### NATIONAL BUILDINGS.

I AM glad to perceive by a recent notice in your excellent paper that it is expected the Government will abandon in future the system of annual parliamentary grants, and create instead a special fund for defraying the expenses of our public works.

To all who are admirers of architectural art, and who are desirous of seeing this country famed for its cultivation, this cannot but prove a most welcome announcement, as it will serve to do away with one of the chief causes of failure, both in design and effect, of so many of our public buildings, namely, the begrudging on the part of the Legislature the sums needed for their erection.

It may be laid down as a general maxim that severe economy applied to the fine, or, as they are sometimes termed, liberal arts, is greatly injurious to their healthful growth and development. Had Sir C. Wren been called upon, with limited funds, to erect a cathedral upon the dilapidated walls and foundations of an ordinary parish church, we should never have had such a building as St. Paul's, and no subsequent outlay, however lavish, could have redeemed the original error; yet this would have been no more than fairly analogous to the case of Buckingham Palace; and all who recollect the parliamentary haggling concerning the estimates for the National Gallery have no just ground for surprise that it does accord with the national wish. In the instance of both these structures all elevation of sentiment and feeling suitable to the occasion was

lost in the consideration of reducing the sum voted to the lowest possible amount, in order to meet the views of the economists and political partisans of the day. Under such hard conditions—to say nothing of other and capricious interference—the most gifted architect, checked and constrained as to all original grandeur of thought and conception, could scarcely but have failed to give satisfaction to the country.

In the great architectural examples of past ages, which we profess so much to admire, yet strive so feebly to imitate, no such niggard principles were allowed to prevail to the hindrance and obstruction of important national works. Pericles, Augustus, Leo X., and Louis XIV., Egypt, and Nineveh, bear witness to our own times, and at our own doors, that this is not the way to make art immortal, or to hand down to a distant and admiring posterity, the triumphs and glories of a high civilization. An accurate statistical account of the sums expended upon some of the "mighty works of old," as compared with the cost of the buildings of our own day, would probably go far to explain the reason why, in the majestic art of architectural design, we so seldom attain to the perfection to which we aspire.

But a new era in regard to the fine arts has already dawned upon us. The generous and munificent spirit which has prompted and promoted the palace of the Legislature, is but its first fruit, and is no more than in harmony with the daily improving taste and public spirit which is abroad among the great body of the people. The Government in this, as in so many other respects, is only following in the wake of public opinion and example.

We have every useful proof that there is no lack of architectural taste, or sensibility, or genius among us. On the contrary, we have on every hand the most ample evidence of its continually increasing progress. In the mansions and club-houses, at the west end of the town; in the public-spirited and praiseworthy exertions of the corporation, and of the wealthy bankers and merchants in the city; and, indeed, in every great town and province of the kingdom, we have witnessed within the last twenty years, in this, as well as in all the other arts of design, the most surprising advance.

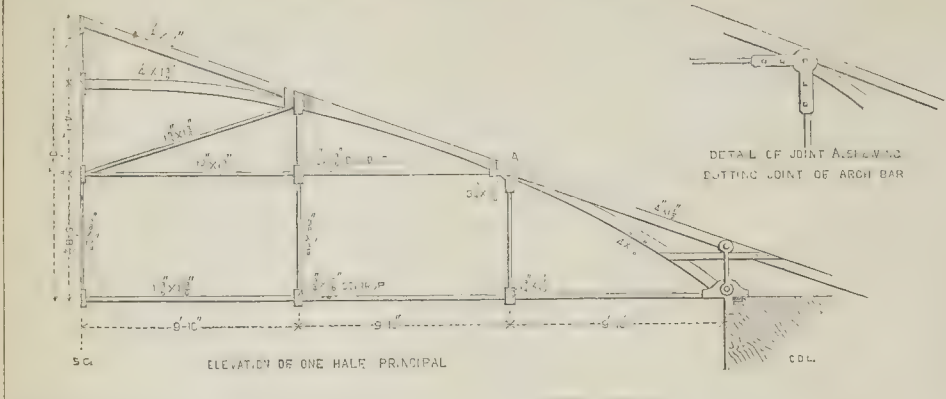
If to all this be added the various societies which, during the same period, have sprung up in different parts of the country, together with the numerous publications now devoted to advocating and illustrating the progress of the fine arts; we are fully justified in the assertion that the people themselves have taken the lead in this important and interesting movement. In short, the promotion of the arts of design, intimately connected as some of them are with the commercial prosperity and wellbeing of the country, has become the cause of the nation at large; and the great exposition projected by H. R. H. Prince Albert, and which redounds so much to his honour and patriotism, is but another link in the same golden chain. The Government, therefore, do well to make some provision, that, for the future, in the highest and noblest branch of the arts, and that which tends most of all to illustrate the genius of the national character, the resources of the state shall be more liberally applied whenever the public convenience demands, or the honour and dignity, as well as the future renown, of the country may require it. In our public works we build for centuries, not for years,—for the fame and benefit of coming generations, not less than for the convenience and enjoyment of our own. The triumphs of the arts of peace are destined to endure. The volcanic revolutions of France have left untouched its temples and its towers: the lowest and most ferocious *sans culottes* held them in respect: foes and conquerors stood in awe of their grandeur, and Paris is Paris still.

Dr. Johnson says he who improves the public taste is a public benefactor; and if our leading public men and statesmen take advantage of the spirit of the present time, to encourage and foster the onward movement in favour of the arts by a wise application of the mere over-droppings of the aggregated wealth of this great community, our own age may become hereafter distinguished by the happy appellation of that of "Victoria and the arts."

WATCHMAN.



## WROUGHT-IRON ROOF OF LA MADELEINE, PARIS.



## WROUGHT IRON ROOF OVER CENTRAL PORTION OF THE MADELEINE, AT PARIS.

The roof of the Madeleine, designed by M. Huvé, architect, consists of a large central nave, with side chapels formed in the recesses made by the advancing piers from which the pendentives of the cupolas spring. A wall continues upon the semicircular arch in the line of the piers, which receives the wrought iron roof here shown.

The roof is continued over the recesses; but as there is not any framing, properly so to speak, in the continuation, the drawing is confined to the central span.

The span from wall to wall is 59 feet; the rise of the roof in centre is 13 feet 1 inch. It is covered with copper, fastened to wrought-iron laths,  $1\frac{1}{2}$  inch deep by  $\frac{3}{4}$  inch wide, which form parallelograms  $15\frac{1}{2}$  inches by  $19\frac{1}{2}$  inches. The laths are themselves made fast, either by rivets or by notches, to the principals, or to purlins  $1\frac{1}{2}$  inch deep by  $\frac{3}{4}$  inch thick, spaced 4 feet  $11\frac{1}{2}$  inches from centre to centre.

We have prepared a series of illustrations of modern roofs of large span, which will appear forthwith.

## WHY SHOULD NOT PERSPECTIVE PARTAKE OF THE PROGRESS OF ART?

In perspective, "as at present taught and practised" were at all in want of a defender, it could not have summoned to its aid any one better fitted for the task than the author of the essay in the opening number of the present volume of "THE BUILDER." To every sentiment of the exposition he has given, I cordially subscribe, with the sole exception of the single line, in which he asserts the inviolability of the perspective medium. To this I claim permission to demur; it is the sole arbitrary assumption that linear perspective contains—the only direction in which improvement could be hoped for, and I know of no valid argument why the present medium should be retained, if one can be substituted for it that possesses any advantages.

One of the most popular, and at the same time just illustrations of linear perspective is, the interposition of a plane of glass between the eye and the objects to be delineated; and, while the eye remains steady in its position, to draw on the glass the outlines of the objects within the field of view. While bound by these conditions, the attempt to introduce into the representation any variety or improvement of form and outline, different from what is "at present taught and practised," is in one word impossible; and I am well content to accept this simple bond of fate, as full security against the success of any one who may embark in so chivalrous an enterprise.

The world having so long practised and enjoyed what is true, is not now going to accept a system at all deficient in the credentials of mathematical truth; neither will it with-

hold its support if a system be presented to it equally true, with the additional recommendations of greater beauty and a more extended range.

To avoid confusion, I will use the term "linear perspective" for that which is "at present taught and practised," and will name the representation I am about to investigate *cylindrical perspective*, as expressive of its generating medium.

Instead of the plane of glass, substitute a vertical cylinder: place the eye at some defined point of the axis, and draw on the surface of the cylinder, round the whole  $360^\circ$ , the form of what you see around you. We have now as truly as in linear perspective a correct representation of the aspect of nature: cut the surface of the cylinder vertically, and flatten it out till it becomes a plane, so as it may be hung against a wall. It is a picture still,—a panorama of the surrounding country; but not having been formed under the conditions of linear perspective, it is entirely emancipated from its laws, but only to become the subject of another code equally perfect, exacting the same rigid obedience to its details, and which claims for its empire a higher rank, because its influence extends over a wider range, and the laws of each system are but a couple of isolated chapters, forming a portion of the general laws of geometrical projection.

If we contemplate the picture thus produced on the developed cylinder, we shall find that straight lines in nature are curves in the representation, with only two exceptions, which are vertical lines and the horizontal line at the level of the eye; in proportion as lines deviate from these they become curved.

Now, while we have been developing the cylinder, what has become of the point of sight from which it must be viewed? We have performed the somewhat singular feat of expanding the point of sight into a straight line, and thus placed the point of sight opposite every part of the picture; for the point of sight from which to view any portion of the picture is always directly opposite to it, and at a distance from it equal to the radius of the generating cylinder.

An important question here arises: comparing this view with one drawn by the laws of linear perspective, what are their relative advantages and appearances? To a great extent this can only be decided by experiment, which, as regards the public, is yet an untried one; but there are several considerations in its favour, and, while stating them, I would not wish to evade, to deny, or to conceal, that there is one great objection that rises up (not in our front), but on either side, viz., that if the eye extend its observations sideways, the picture will appear to be error. As this is an inherent defect of the medium, and cannot be removed, the only way of dealing with it is to examine what it amounts to, and see if there be any mitigating influences to reduce it; perhaps after this examination we may be able

to conclude that the objection is (like many others), more apparent than real.

The peculiar property of this projection is, that from whatever point you view this picture, the part immediately opposite the eye, and therefore most open to observation, is not merely the most accurate, but absolutely accurate; and because the proper line of sight is always perpendicular to the plane of the picture, it is to a great extent immaterial whether you are at the exact distance of the radius of the cylinder from it; in fact, it would be more advantageous to double or treble this distance, because it would lessen the error in the surrounding parts: this is one mode of lessening the objection.

The second consideration that comes to our aid is, that the portions of the view on either side of the eye, by becoming more and more oblique, are less and less exposed to observation, and thus we have another great ground of compensation, viz.—that, as the error increases, the power of observing it becomes less.

A third consideration is, that when the angle of the picture does not exceed 30 degrees, the difference between linear and cylindrical perspective is not perceptible: when the angle attains 60 degrees, the difference between the two modes of projection, though very apparent, is not very great. I now speak from the results of actual experiment and calculation; and, as we do not conveniently observe a larger angle, it follows that we do not observe the errors when they become really great.

Again, it is evident that the error produced by viewing this picture obliquely cannot be greater than the error produced by viewing linear perspective from the wrong point, which has been continually done, up to the present moment, without producing any very disastrous results.

But if, after all, when viewing the picture, a shade of suspicion should flit across the mind that in its sidelong rays truth is not so apparent, pray give this portion a more direct examination, and you will be immediately convinced of your mistake.

Therefore, against the objection, which I confess appears to me at first so formidable, we may state,—

- 1st. That it is lessened by increasing the distance from which the picture is viewed.
- 2nd. That as the error becomes greater the power of observation becomes less.
- 3rd. That within the field of convenient vision the error is not great.
- 5th. That the error is not greater than a corresponding one to which linear perspective is accidentally liable.
- 5th. That the error is entirely removed by a more direct examination.

Now, contrast the two: in linear perspective there is one point, seen from which it is a true representation, and only one; and this one is never specified, except by a vague judgment. Cylindrical perspective has an infinite number of points from which to view it,—all



readily found; and, from their being infinite, they are necessarily found. A number of spectators are looking at the two pictures;—taking into account the combination of distance with lateral position, I scarcely exaggerate when I say that, in linear perspective, the chances are 1,000 to 1 against any eye being in the point of sight: in cylindrical perspective, every eye looking at it must be in the point of sight! Strong probabilities in its favour!

The eye should be on the level of the horizontal line. The chances of error in this respect, of a wrong position of the eye, is the same in both systems, and how greatly it is violated may be seen in every exhibition.

The standard of excellence in all delineation is that it shall be proportional to the space it represents. In perspective, this property belongs alone to the spherical surface, a standard of excellence unapproachable, because it cannot be developed; but the cylinder is obviously a close approximation to it, perfect in the direction of horizontal length, and but slightly deviating in vertical height, which is generally the smallest dimension of the drawing.

Recurring again to the representations of linear perspective, their excellence surely is not owing solely to the fact, that they are correct projections as seen from an assumed point, for they are admired by all, though the point of view is never found; but their excellence is due to the practice which, from motives of prudence and propriety, has properly confined their limits within the bounds where the outline nearly coincides with, or but slightly differs from, the projection of cylindrical perspective, and therefore, though drawn for one point, the law of cylindrical perspective is admissible, which permits them to be seen from all, with only a small amount of error. When taken beyond this limit (about 60 degrees), linear perspective fails in its effects.

Surely (in the absence of drawings) these mathematical considerations are enough to decide a strong preponderance in favour of cylindrical perspective, as a system of wider scope and greater power, seeing that even linear perspective owes its excellence to considerations that form an alliance with it.

The principal laws of this system may be thus summed up:—

1st. All parallel straight lines have two vanishing points, which, measured on the generating cylinder, are 180 degrees apart, in which all lines that are in nature parallel to each other terminate.

2nd. The nature of the curves into which the lines are projected (except vertical lines and the horizon) is a wave, the curvature changing at the vanishing point into the contrary direction,—therefore just at the vanishing point the line is perfectly straight; from thence its curvature increases till you get to the centre, which is the point of quickest curvature; in fact, from vanishing point to vanishing point is one-half of the way line, so well known as Hogarth's line of beauty, but whether this is a source of excellence I will not now stop to discuss.

3rd. As regards the applicability of the system by artists and draughtsmen, it will, upon the whole, be readier than perspective "as at present taught and practised;" all the vanishing points will either lie within the picture, or not be further from its edge than one quarter of the circumference of the cylinder; we therefore get quit of the nuisance of inaccessible vanishing points, and have, instead, to arrange the curves; but as these will be drawn by a set of properly adapted templates, the change is an advantage, and any portion of the cylinder may be selected that will suit the artist's purpose—30, 60, or 120 degrees of it. The angle under which an object is viewed may be increased or diminished at pleasure by approaching to, or retiring from it.

4th. The space occupied by the representation of an object is horizontally proportional to the angle it subtends; and vertically it is in proportion to the tangent of the angle. This evident property of the system is the basis of its excellence.

For these considerations, but principally because here truth ever travels with the eye, while in linear perspective you must search for it at an eyelet whose position is most carefully concealed, I shall, as far as my own purposes

may require delineation, lay aside "perspective as at present taught and practised," and substitute the cylindrical medium. Its operations are easier: if the angle be small the substitution of one system for the other will not be perceived; and if the angle be large I shall possess the pleasing assurance that I have exchanged the slender, trembling chance of any eye viewing it aright, for the absolute certainty that no eye will view it wrong!

Will artists avail themselves of the same consolation?

GEO. HEALD.

#### WHAT SHALL WE DO WITH OUR DEAD?

CUSTOM possesses a great—a giant-like power; it is, therefore, far from an easy matter to wage a successful war against its influences: when, however, it throws its powerful shield over practices that are dangerous to health and happiness, it becomes the duty of all who can disentangle themselves from its spreading meshes to step forth and arm themselves for a battle with it. We moderns have become so accustomed to the practice of committing our dead to the keeping of the earth, that a proposal to deal with them in another way strikes our ears with strangeness, and causes many, when they are informed that the element we would substitute for earth is *fire*, to start with affected or real horror. Let all who value health, who enjoy happiness and love life, give their earnest support to the society recently brought into existence to carry out the restoration of the ancient mode of sepulture. If there should be some who find it impossible thus violently to break through the bonds of custom, I would ask them to read and ponder well the wise advice given in a late number of this journal, and would say, in reference to that proposition, that there is nothing which will form a safer and better substitute for fire than the material therein referred to, viz., lime,—it being of such a nature that bodies committed to its embrace would be almost as truly burnt as would those placed upon the summit of a funeral pile. It is pretty certain that if we do not close up for ever our town burial-grounds, and send forth the cry of "burn, burn" (either with fire itself, or its substitute, lime), the breezes of the summer and the autumn months, which should come to us laden with the refreshing fragrance of earth, flowers, and fruits, and bearing to our ears the song of rejoicing nature, will, instead, visit us full of the noisome vapours of putrifying matter, and bring to our hearing the sighs of suffering humanity caused by the reappearance in our midst of the gaunt, the frightful spectre,—the pestilence.\*

LE FEU.

It is now beyond all doubt a well ascertained fact, that the effluvia generated by the decomposition of animal as well as vegetable matter, is highly prejudicial to a normal condition of the human frame. It is also certain that unwholesome vapours are emitted from churchyards, cemeteries, and other depositories of the dead. It has likewise been observed that at certain seasons and temperatures, when disease is more general, the mortality is considerably greater in the neighbourhood of those quarters where the dead are congregated than in other districts.

The medical officer for the city has made a move in the right direction, and in his recent admirable report, has given it as his opinion that intramural burials are injurious to health, and should therefore be no longer permitted. Now, I submit, that the very reasons that have prompted him to give this advice respecting the city, will also argue against burying in the suburbs, and therefore it becomes necessary to treat the question in another way. I believe a proposition has been made to establish large cemeteries at a distance from town, but seeing that these must one day become the centres of other populations, and considering that by this plan we should be entailing on a future generation the very evils we are now striving to rid ourselves of, I insist this would be only a half measure, and not at all suitable to the rapidly increasing exigencies of this metropolis.

I now, therefore, beg to suggest, that the

\* We have received several other letters relative to the paragraph in question, which urged the use of lime, showing a very general acceptance of the advice.

sea be made the common receptacle for the dead. This idea appears to me comprehensive, and I do not know of one feasible objection to its being carried out.

I am aware that some will raise objection to this mode of burial on the score of sentiment, but to my mind the idea is not so repulsive as that of allowing a multitude of our fellow beings to corrupt in the very midst of our homes.

L. L. L.

#### WELSH EDUCATIONAL INSTITUTION, LLANDOVERY.

ARCHITECT CONTRACTORS.

ON receipt of the first of the letters on this subject published last week, we forwarded it to the architects for explanation, and at the moment of going to press, received a reply, in which they say they "have no wish or reason to deny having undertaken the execution of the contract," and that they "think under the circumstances they acted only as professional men should do." "We felt bound," they say, "to fulfil our engagement with the Committee, and saw no other way of so doing, but by entering into the contract ourselves, to get the work carried out according to our drawings and specifications for the amount of our estimate, and to the satisfaction of the Committee, or any one it might appoint to inspect the work. It was, however, distinctly understood, that we were to be considered the architects in all respects, and agreed, that we should receive our regular commission and travelling expenses, the amount of which was inserted in the contract."

"We think you will admit we have acted only as professional men should do." Since the appearance of our last number, we have received a second communication from Messrs. Fuller and Giggell, for which, as it leaves the main point of the matter exactly where it was, we cannot find space. Messrs. F. and G. think that, in undertaking the contract, they acted, under the circumstances, as architects should do. We are sorry that we cannot agree with them.

We have since received intimation that a provincial fellow of the Institute has contracted for the execution of a design submitted by him, thereby, as we need scarcely say, running the risk of expulsion from the body; one of the special grounds for expulsion being, "for having any interest, or participation in, any trade, contract, or materials supplied at any works, the execution whereof he may be or have been engaged to superintend."

#### HEADWAY IN STAIRCASES.

COMPETITION PLANS.

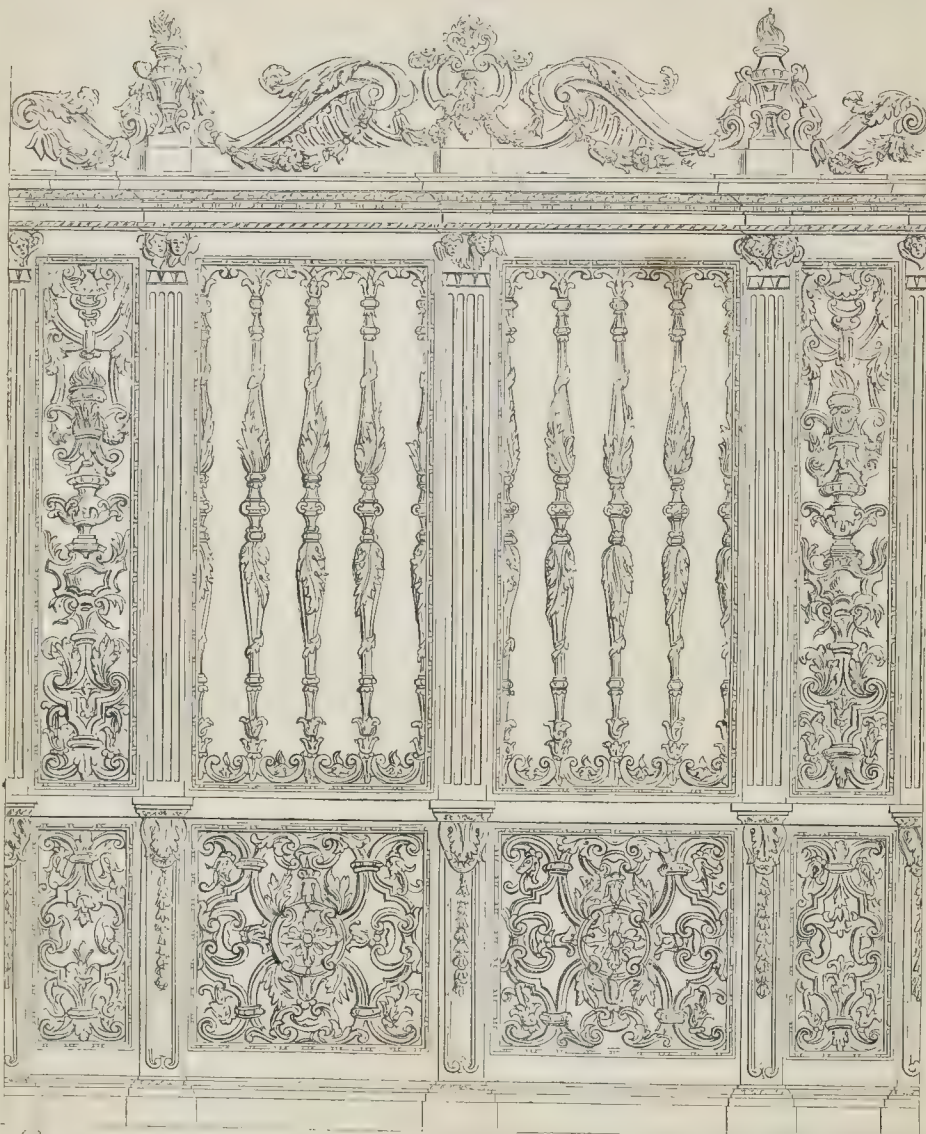
A CREDIBLE correspondent says,—“Accident led me the other day to visit a set of new buildings for a union workhouse, erected from a competition design, under the successful competitor, and there I saw what certainly startled me, little as I usually expect from competitions. The central and principal staircase of the main building had been brought to a stand-still, without reaching the first-floor, by the clerk of the works, a man about 5 feet 6 inches high, knocking his head one morning against the step the masons were setting! It was then found out that, if the flight were continued, a man must go up stairs on his knees to save his head—to say nothing of his hat!”—Our correspondent's statement reminds us of old Bush, of "barrack-department" notoriety, in days gone, who finding himself on one occasion in the position of the union-house architect referred to, said he would never let a staircase be begun again without having it first chalked out on the wall!

PUBLIC NECESSARIES.—With reference to this crying necessity, I saw in Brussels what I think may help to remedy the evil, and, in many situations, be beneficially adopted. The bottom part of the lampiron is made to form a niche or recess, containing a urinal, and sufficiently large to screen one individual, the entrance facing the road. If such as this were placed at intervals, opposite blank walls or wide openings in the road, properly supplied with water and attended to, they would certainly be a great convenience, without, I apprehend, grossly offending any sense.—H. D.



## BRONZE GATES, LISBON CATHEDRAL.

[A.D. 1755.]



## BRONZE GATES IN THE CATHEDRAL OF LISBON.

THESE gates of bronze gilt were designed by Antonio Montanti, of Rome, in 1755, for one of the chapels of the Patriarcale in the cathedral of Lisbon.

The accompanying drawing is reduced from one of a very large size contained in a curious and valuable book, purchased by Mr. Weale, an account of which was published in the Quarterly Papers, with illustrations, and a description by Mr. John Woody Papworth, who tells us the book is a fine manuscript folio in a current hand, about 3 inches in thickness, of 319 pages, and lettered on the back, "Patriarcale, Lisbon, MDCCCLV." The title (the language employed is Italian) reads, "Book of Sketches of the Designs of Works proposed, which are being made in Rome by

order of the Court." Under each of its fifty-three heads appears the name and denomination of the profession or occupation of one individual or firm, with specifications and estimates for the execution of autographic designs inserted in the subsequent alternate pages. These drawings compose a collection of designs for what was deemed necessary by the authorities and architect for the decoration and furniture of part of the Patriarchal Cathedral at Lisbon; but whether consequent on the events of the year 1748, or whether demanded by the fire of 1755, which so totally ruined the cathedral, only an active personal examination on the spot can now decide. The architect would appear to have prepared outline pencilled drawings of his preparations, which, when transmitted to Rome to the agents of the chapter, were filled up with designs, supplied

by those artists and manufacturers who, it may be presumed, were the most eminent at that time in Italy."

The style of the composition of the various subjects is the Italian version of the style of Louis XV. The following particulars accompany the drawing here given. "The said grating is 13½ palms high, 12 palms long: weight, 12,000 lbs., divided as follows:—

Copper, 12,000 lbs.	2,400 scudi ..	£510 0 0
Gold, and expense of gilding .. .. .	5,900 ..	1,253 15 0
Expense of models, wax, &c. ....	900 ..	191 5 0
Manufacture .....	12,800 ..	2,720 0 0
	<b>S22,000</b>	<b>£4,675 0 0</b>

The value of the scudo at that time was about 4s. 3d.

R.



## THE BENTINCK MONUMENT, MANSFIELD, NOTTS.

FUNDS having been raised by the county of Nottingham to erect a memorial to the late Lord George Bentinck, various propositions were submitted, amongst which were the addition of a new wing to the General Hospital at Nottingham, the foundation of an agricultural college, the building of a number of almshouses, and a monument in Southwell Minster.

Ultimately, however, the design by Mr. Hine, represented above, and which is founded on Queen Eleanor's crosses, was selected, and has been carried out in the market-place at Mansfield. It is in the Decorated or Second Pointed style of architecture. The area occupied by the bottom step is 20 feet square, the total height 52 feet. The monument is divided into three stages,—the base or pedestal; a gabled canopy, supported on pinnacled buttresses and clustered columns; and a spire pierced with traceried and gabled lights, and terminated with a gilded vane. The lower stage consists of a flight of steps, surmounted by an arcaded pedestal, with shields of the armorial bearings of the Portland family, and a recessed set-off, to receive the buttresses and columns of the canopy. At its four angles are pedestals surmounted by lions *séjants*, supporting vanes, upon which also will be emblazoned the family arms. The gables of the canopy are filled with diaper-work and emblematic sculptures. The pinnacles, gables, and spire-lights are crocketed. The original design included a statue, but this has been omitted.

Mr. C. Lindley, of Mansfield, was the contractor. The total cost, as it now stands, will be about 1,000*l*.

## MODERN ARCHITECTURAL PRACTICE.

SOME recent remarks in THE BUILDER lead us back to your old question, "are architects only to copy?" about which so much has been said and written that it is almost impossible to pen anything new upon the subject. There are, however, one or two points connected with it that will bear more distinctly pointing out than has yet been done, and to do this it will be necessary to begin by describing how designs are now manufactured by some part of the profession. It is something after this fashion:—A new client calls upon an architect, is duly ushered into his "own office;" he opens business by saying that he is about to build himself a country residence, over which he has cogitated some time, comes of course blown out with ideas, and loses no time in giving him (the architect) the benefit of them: states the number of rooms, how he thinks they should be placed, his notions about the stables and outhouses, and finishes up with some vague description of the style he should prefer it in. The architect, bewildered at his meaning with regard to the latter part of his instructions, shows him some drawings of houses he has already built or designed—the latter usually predominating. The architect having exhausted his "bill of fare" of style; the particular one is with some difficulty decided on, and the gentleman takes his departure, not, however, before he has asked when he will be able to have some sketches, hinting, at the same time, that the spring is fast approaching or going, as the case may be, and that there is no time to be lost. The architect replies, by stating the vast amount of business he has in hand, and, perhaps, the unfortunate illness of one of his clerks, but will endeavour to let him have "something" in a fortnight. The client is astonished at the time, thinks he ought to have the mere rough sketches in a week, and in fact is going out of town in ten days, and must settle matters before he goes. Of course the architect gives way, and the interview closes. Three or four days pass on, and the drawings are not touched, until something suddenly reminds the architect that the time is nearly up. He then marks out a rough sketch of a plan and elevation, turns them over to his clerk or pupil, with sundry directions to take the bay window from the duke's house, Bradford, the chimneys from "Hunt's Tudor," and the gables from the "Baronial Halls." The design is completed, and sent off with a showy perspective sketch, returned for

## THE BENTINCK MEMORIAL, MANSFIELD, NOTTS.

MR. HINE, ARCHTCT.



alteration, sent in again, approved, and once more returned; the "mere sketches" are then given over to the taste and mercies of some articulated clerk, to get out the working drawings; contracts are advertised for the same week; its erection is taken by some sinking builder, under prime cost,—scamped, finished, and paid for within the twelvemonth, and the whole scene finally closes with the architect's little account.

Now, does any thinking person suppose

that Kenilworth, Penshurst, Wollaton, Holland House, or any of the little gems of churches studded over the country (for the system is just the same in ecclesiastical as well as domestic architecture) were designed and built in this manner? Most assuredly not, will be the general exclamation. Whole lives were then occupied in erecting one house or one church; consequently, original and beautiful designs were produced; but now an architect practises in a dozen different styles in as



many hours, and is not paid for thinking. How can such hasty and confused work produce original thought? and can we be surprised that we find no new ideas in our modern erections?

Another evil that serves considerably to check the growth of original design is the improper liberty allowed to any man who chooses to write himself down an architect, although many would be far nearer the mark if they followed old Dogberry's plan, and wrote themselves down "an ass." It is true that London, to a certain extent, is pretty clear of these gentlemen, but in the country they abound as the locusts did in Egypt. Bankrupt builders, aspiring carpenters, and used up stone masons, think nothing of starting as architects, provided they can scrape together sufficient to purchase an eight and sixpenny box of iron mathematical instruments and a deal T square. These men work for far less than the 5 per cent., generally 2 per cent., and not unfrequently 1½ per cent.; in fact, I know of one of these pseudo architects who designed and superintended a thousand pound house, three miles from the town he lived in, for a five pound note. How, then, can the art prosper when it is infected and affected by such impostors as these? Most assuredly it cannot. With railway speed required on the one hand, and a ruinous competition, to a certain extent, with such men as I have described, the man who steers clear of solecisms and heterogeneous masses of absurdity is not to be "damned with faint praise;" and all that we can expect whilst the present state of things lasts is a *good copy*, and surely a *good copy* is better than a *bad original*. This age is not calculated to bring forth a sixth order of architecture, or a new ecclesiastical style. Architects are too much influenced by the times to be able to accomplish, or rather to bring out, what is within them; they are also too much under the will of their employers, who almost invariably have a plan cut and dried before they apply for professional assistance, although it seldom happens that their knowledge extends further than "a first-class house according to the Act."

R. M. PHIPSON.

#### METROPOLITAN WATER-SUPPLY.

THE respective merits of the Henley and Mappedurham schemes have been reported on to the city corporation, by Messrs. J. Walker and S. W. Leech, so far at least as regards quantity and influence on the Thames navigation. As to the quantity proposed to be taken by each respectively, they report that inasmuch as that supplied to the metropolis by the old Companies even so far back as 1834, had been estimated at 31,500,000 gallons in twenty-four hours, and must now, therefore, be much more, the quantity proposed to be conducted from Mappedurham, namely 50,000,000 gallons in twenty-four hours, would in all probability fail to give satisfaction, and could not afterwards be increased without great expense through 36 miles of close pipe: whereas the Henley Company propose to conduct 100,000,000 gallons in twenty-four hours, through a comparatively great length of open canal, and would therefore afford an abundant supply, which might even be increased with greater economy if consistent with the proper navigation of the river. As to this point, they report that 50,000,000 gallons would be one-third of the whole river at Mappedurham in drought, while 100,000,000 gallons at Staines would be one-fourth, and at Teddington one-fifth only of the whole. In floods, the abstraction by the Henley Company would be doubled for flushing the sewers. The quantities proposed to be abstracted in both schemes the reporters, therefore, regard as likely to interfere seriously with the navigation; that at Teddington lock, for instance, being estimated to be capable of lowering the level of the water seven inches. For this evil, however, they report that there is a remedy. "By the removal of Teddington lock, and erecting a new lock near Kingston, or about a mile or a mile and a half above Teddington, with a sill of sufficient depth there, removing the shoals so as to enable the tide to flow more freely up to the proposed lock, and deepening the river up to it, the abstraction of water would be compensated for, and the na-

vigation of the Thames improved by the greater quantity of tidal water which would flow and ebb at every tide." By this improvement (not a new suggestion, as remarked) the damage to the navigation would be but small, while the advantage to the metropolis of such a supply is admittedly a very important one.

#### NOTES IN THE PROVINCES.

THREE stained-glass windows have been placed in the chancel of Wiset Church, Suffolk, at the expense of Sir William Hartopp, Bart., of Sutton Coldfield. Fenders are now to be called for, for the erection of the new Lunatic Asylum for Essex, the Secretary of State having finally sanctioned the plan. The painting of the Essex County Ball-room, by Mr. Bird, of London, according to the *Chelmsford Chronicle*, has been completed. The contract was taken at about 300l. The decoration of this apartment, by aid of another fund of 1,000l. and upwards, has also been decided on. Mr. Bird has furnished the designs, which will be in white and gold, with marbled pilasters, plate glass about 10 feet high in panels and over fireplaces, &c., &c. The price of gas at Cambridge is to be reduced by Midsummer to 5s. 6d. a thousand cubic feet.

Caversham Park, the property of Mr. Crawshaw, the ironmaster, and a prominent object in the Great Western scenery near Reading, was burnt to the ground on Friday last, from an overheating of the flues in the absence of the family. The mansion was not insured, but great part of the contents was rescued.

Mr. G. Rogers, of Worcester, is now executing a stained-glass window, commemorative of the late Queen Dowager, to be erected in Malvern Abbey Church; together with another obituary window to the memory of the late Rev. James Stillingfleet. The Kidderminster Guildhall has recently been "repaired, improved, and beautified," at a cost of about 120l. The architect employed was Mr. John Nettleship, and the contractor Mr. Thompson, both of that town. The walls are of a tea-green colour, and are wainscotted to the height of 8 feet 6 inches. The ceiling is pierced with three ventilators, ornamented with papier maché flowers. An appeal is being made for a new church in the district of Edgehill, Liverpool. 44,000l. out of 6,000l. have been promised. The Manchester Waterworks Committee have now expended upwards of 143,000l. on the new works, besides 13,600l. for piping. Great loss and inconvenience, it seems, have been sustained by letting contracts to parties unable to execute them. The Mottram tunnel is said to have been "let at a price at which it could not be executed," and the committee were perplexed about the letting of the work. Yet not a pint of water can be carried to Manchester through these works till it be finished. The committee have therefore been taught a lesson which is leading them to look with some suspicion on those "lowest tenders" which have hitherto been the most likely to carry off the prize—or at least to have the offer, though "unable" to carry it off, even as a burden. As to sureties for the completion of such cheap contracts, one of the defenders, in council, of the committee's endeavours to realize them, stated, in reply to a question on this point, that "the amount taken in such a case would open us up to litigation, and that would not do. The tunnel must be completed by a fixed time, and if we had gone to law we must have lost time. We negotiated, and the contractor lost a portion of his deposit money." St. Hilda's church, South Shields, was damaged by fire on Sunday week, to the extent of 200l., from the overheating of a stove. From want of care and caution, it is alleged, in the selection of a branch warehouse at Killarney, a twofold accident, of a shocking description, occurred on the 14th inst., when the building formerly known as "the college," inhabited by paupers, took fire and fell into ruins, while fifteen of the inmates are said to have been lost sight of, or in other words probably lost their lives. While this was taking place, the flooring of a detached building, inhabited as dormitories, gave way with the pressure of a mass of poor creatures seeking egress, and no less than twenty-seven young women and two nurses were instantly killed.

#### SOME MATTERS ARTISTICAL.

*Medal to Sir Christopher Wren.*—The medal prepared in honour of our great architect by the Art-Union of London, in continuation of their series, which previously comprised Reynolds, Flaxman, Chantrey, &c., is now completed. The obverse gives St. Paul's Cathedral, by Mr. B. Wyon, and is one of the most successful representations of a building on a medal ever achieved. The head is by Mr. Wilson. A medal to Inigo Jones is in preparation. This medallic series in honour of British artists was a happy idea on the part of the London Art-Union, and should be vigorously pursued. The illustrations of Goldsmith's "Traveller" for the ensuing year are nearly ready, and will form a beautiful volume. The prints of "Sabrina" will be delivered to the subscribers at the beginning of March.

*The National Institution for the Exhibition of Modern Art.*—For this body, formerly known as the Society for the Free Exhibition of Works of Art, a spacious and well-lighted range of four galleries are being erected in the rear of a house in Regent-street, nearly opposite the Polytechnic Institution, where the entrance will be formed. The Chinese Exhibition-room in Knightsbridge was found to be too far west. Canvas and paper, on battening, will be used instead of internal plastering, and the rooms will soon be ready to receive pictures. The principal gallery is 73 feet by 24 feet, and the second 50 feet by 23 feet. One of the rooms is 20 feet high, exclusive of the lantern-light; the others are not quite so much. Mr. R. S. Lauder is president of the society, Mr. G. Middleton treasurer, and Mr. Bell Smith the secretary.

*Mr. Grundy's Exhibition of Drawings.*—At his establishment in Regent-street, Mr. Grundy, the publisher, has opened a winter exhibition of water-colour drawings and sketches in oil, which will afford a great treat to all lovers of art. It contains some charming specimens of the skill of Catmerole, E. Landseer, Stanfield, Roberts, Etty, Harding, Eastlake, S. Cooper, Poole, Kennedy, Frost, Egg, Creswick, Topham, &c., &c. Every work in the collection claims admiration. "Napoleon's Eagle," by Landseer (full of poetry), Catmerole's "Columbus explaining his scheme of discovery" (full of power), are prominent items.

Mr. Grundy's exhibition is a good thought, and will, we hope, be appreciated by the public. *Liverpool Art-Union.*—At the annual meeting on Thursday in last week, the Earl of Sefton presided. The subscriptions amounted to 630l., of which 315l. were set apart for twenty-one prizes. The prizes were drawn by two Blue-coat boys; and in the course of his remarks, the chairman directed the attention of the boys to Ansell's great picture of "The Wolf-slayer," which was one of the most prominent works of art in the room, and remarked, very emphatically, "From your school came the great man who drew that picture: that is a credit to you."

*The Homeric Table.*—Mr. John Henning, Jun., the sculptor, has just now completed a table for Lord Northwick, of very elaborate and remarkable design. It displays a series of drawings in sepia, arranged in concentric rings, around a centre, from *bassi reliefs* illustrative of passages in the Iliad, covered with a sheet of plate-glass. The angles of the supporting pedestal have figures of Achilles, Iphes, and Briseis, around the stem of a palm tree. Apollo and his steeds, with

"The Pleiads, Hyads, and the Northern team, And great Orion's more refulgent beam;"—form the centre, and then come scenes of war, husbandry, and pleasure. It does not assume the classic severity of Flaxman's "Shield of Achilles," with which the subject forces a comparison, but presents much pleasing composition of graceful flowing forms. It is now, through the good feeling of Lord Northwick, at Messrs. Hering and Remington's, in Regent-street, where the visitor may further see an interesting collection of foreign prints.

*Mr. Lewis Vulliamy*, the architect, met with a very serious accident on Friday week last, in the act of crossing the road near his residence at Highbury; his foot slipped on the ice, causing a fracture of the thigh bone.



## ARCHITECTURAL NOMENCLATURE.

It seems the fashion now to disparage the correctness of the terms which, since the revival of our ancient architecture, have been in use to designate its different phases, and the term "Decorated," as applied to the most beautiful period of its progress, has been often objected to before "Zeta's" letter. This term Decorated was designed not to mark a style throughout Pointed Architecture, but as it was originally promulgated "Decorated English," as applied only to the complete Gothic of our own country.

The Decorated style in this country was formed in the addition of lines giving softness of internal figure to the masses obtained by the mere working lines in the earlier style. The architects of that age give the greatest beauties (I may say wonders) of constructive effect, without seeming to be aware of the great proofs of their skill they were showing, and thus giving an allowed proof of their genius. Later architects produced, perhaps, more wonderful effects, but we lose the pleasure we had in following their predecessors, from the great number of upright lines, evidently for the purpose of support, which they introduced, and then, as in their fan tracery, with great disingenuousness forsaking them and evidently making use of some concealed means of support. The Decorated English may have no more work in it than the Early English, but the work is applied in a manner to produce more elegance by the greater freedom and play of the lines introduced. The term Decorated is derived from a Latin word referring to elegance rather than adornment, and this aptly describes the style to which it is applied. Those who, like myself, have felt the relief to the eye on entering a Decorated church after a series of Perpendicular churches, will better appreciate the title than those who study their country's architecture in the present metropolitan improvements. It is like coming at last to the real building after long watching the progress of the scaffolding. With regard to our term Perpendicular, I scarcely think we can mend it as a descriptive one (and as such both of them are intended), as it describes not only more than two-thirds of the whole superficies of tracery, but the fan tracery itself is composed almost entirely of perpendicular lines, and only from the principle of their construction radiating instead of parallel.

R.

## A STRUCTURE FOR THE 1851 EXHIBITION.

We mentioned a short time ago that Mr. Turner, of Dublin, who constructed the new palm stove in Kew Gardens, had, in conjunction with his son, Mr. T. Turner, prepared a model of a structure of iron and glass for the 1851 exhibition. Since then we have seen a plan and elevation of the design, which shows that it is to occupy an area 1,440 feet long and 1,060 feet deep. The main building, which is, in truth, an enormous greenhouse, 1,020 feet long, has five domes of iron and glass; the central one 200 feet high to the crown, the others 150 feet high! Covered ways surround the whole, and railways are provided as well to convey the visitors from one end to the other, as the objects of manufacture to their standing place. Two steam engines are to give life to the machinery, and at the same time drive in an ample supply of fresh air. The projector's idea is that it should be erected permanently in the Green-park by a Joint-stock Company, who would let it for the purpose, and at other times use it for monster concerts, "winter garden," &c. &c. The cost is estimated at 300,000*l.*, and Mr. Turner states that there are parties ready to carry out the design on receiving the site for it free. This, course, however, is obviously out of the question; whatever we may think of the building itself.

## SHIP BUILDING IN THE UNITED STATES.

—We learn from the American papers, that the amount of tonnage built in the United States in the year ending on the 30th of June last, was 256,577 tons, consisting of 1,547 vessels: of those 198 were ships, 148 brigs, 623 schooners, 208 steamers, and 370 sloops and canal boats.

## INTERFERENCE WITH FOOTPATHS.

"For every evil underneath the sun  
There is a remedy, or there is none.  
If there be one, seek and find it;  
If there be none, never mind it."

YOUR correspondents have drawn public attention to the disgraceful state of the footpaths in various roads, occasioned by the practice of heaping the stercoraceous scrapings of the roads in hillocks thereon, not only to the discomfort of the inhabitants, but oftentimes to the imminent danger of the pedestrian traveller. The evil is surely one of no ordinary character, and requires to be met by some extraordinary effort on the part of the resident ratepayers.

The Camberwell district, which is not very remote from that of your correspondent, was some time since infested much in the same way, and the trustees of the Surrey and Sussex roads, as well as the justices at quarter sessions, were appealed to upon the subject by petition, signed by 450 ratepayers.

The plan suggested by the petitioners was to form a ledge between the road and the footpath, for the use and bearing of the material in question,—and its adoption proves to be most efficacious. If your correspondent will indulge himself with half-an-hour's run some fine morning, he may have ocular demonstration of the fact as stated by Q. S.

## NEW SUSPENSION BRIDGE OVER THE RIVER LOCHY.

A SUSPENSION bridge by Mr. Dredge, on his principle, has been erected over the river Lochy, between Fort William and Corpach. A dinner was given on the occasion, and we learn from the speech of the engineer that the span is 250 feet; platform nearly 17 feet wide; clear roadway 15 feet; the masonry at the base 28 feet by 16 feet, and built solid up to the roadway, 19 feet high, above which each arched entrance is 12½ feet wide and 20 feet high; and the top of the piers upon which the chains rest is 24 feet above the roadway, the whole tapering three-fourths of an inch to the foot in elevation, excepting four feet of plumb which supports the arches. It is built of granite rock-work. The versed sine of the bridge is one-tenth of the chord line, and it consumed 40 tons of wrought and cast-iron. The section of the four chains at the top of the piers is 50 inches, which taper to O at the centre of the bridge. The platform contains 3,600 feet of surface, which will admit of 360 head of cattle being upon it at one time, and this will be the heaviest load to which it will be subject. The foundation stone was laid on the 6th of August last, and deducting the time lost by inclement weather and short days, the bridge was three months in building. The cost was about 2,000*l.*

## BOOKS.

*Tubular and other Iron Girder Bridges, particularly describing the Britannia and Conway Tubular Bridges; with wood engravings.* By G. D. DEMPSEY, C.E. Rudimentary Treatise. Weale, Holborn.

*Truths and Tubes on Self-supporting Principles: a few Words in reply to the Author of High-ways and Dry-ways.* By THOMAS FAIRBAIRN. Longman and Co.; Simms and Denham, Manchester.

THE first of these little books contains an excellent digest of the experiments and other proceedings which led to the discovery of the cellular self-supporting principle, and the discarding of the principle previously designed for the great iron bridges on the Holyhead line of railway.—As for Mr. Fairbairn's response to Sir F. B. Head's "High-ways and Dry-ways," in the *Quarterly Review*, we need not again enter on this already vexed enough question, which may now be safely allowed to fall asleep with the assured hope of a reawakening rid of all ruffled feeling, restored to its own right senses, and standing on its own proper feet and inches.

## BRADFORD WORKHOUSE COMPETITION.

—The decision appears to rest between Mr. Atkinson, of York, and Mr. Lockwood, of Bradford.

## Miscellaneous.

**BUILDERS' BENEVOLENT INSTITUTION.**—We are glad to hear that the proposed anniversary ball in aid of the funds of this Institution, already mentioned by us, has been taken up very warmly, and promises a most successful issue. Between five and six hundred tickets are already disposed of; the total number, however, ought not to be less than a thousand. A list of the stewards will be found in our advertising columns, from any of whom tickets may be obtained by respectable parties, and we advise such of our readers as are willing to do good, and spend a pleasant evening by the same moderate investment of capital, to lose no time in applying. If this ball enable the committee to commence the erection of an asylum, it will be dancing to some purpose: we earnestly hope it may.

**THE BUILDING ACT.**—In the preparation of Acts of Parliament, it is generally found that those which are of general and important character, have less attention paid to their provisions than ordinary ones; there is not only ambiguity in the wording of them, but the dubious construction of their clauses is the reason for the creation of ministerial officers to elucidate the meaning of the legislature. In a matter of so much importance as the Building Act, the provisions should at any rate be clear to the comprehension of the architects of this metropolis, yet strange to say, none are now permitted to comprehend them but the district surveyors. As this Act will come under the revision of the legislature in the ensuing session of Parliament, I do hope that more care will be taken in the several sections, so that they be made lucid to all professional men, and that the Committee do not confine their inquiries to district surveyors alone, but to all parties interested in so important a subject. The difficulties and mischiefs which have arisen from the present Act, far exceed those of the original one, and demand a very full inquiry, so that the reading may be as comprehensible as the laws of Moses, and the monopoly of the district surveyors' self-interpretation be entirely abrogated.—AN ARCHITECT OF THIRTY YEARS' STANDING.

**INSTITUTION OF CIVIL ENGINEERS.**—On Tuesday, Jan. 22, Mr. William Cubitt, President, in the chair, the paper read was, "On the Periodical Alternations and Progressive Permanent Depression of the Chalk Water Level under London," by the Rev. J. C. Clutterbuck. The general conclusion drawn from facts was, that the rapidity of exhaustion from Artesian wells under London greatly exceeded the rapidity of the supply; that the amount of defalcation was marked, and could be measured by the extension of a progressive permanent depression, proving that the supply of water from the chalk stratum became each year more precarious, and less to be depended upon, even should there be no addition to the Artesian wells in and around the metropolis. On the other hand it was contended, that from the great extent of surface whence the chalk derived its supply, there might be such a surplus store of water as would warrant any amount of pumping for the domestic supply for the metropolis. The discussion was announced to be continued at the meeting of Tuesday, January 29, which would be entirely devoted to it.

THE "NE PLUS ULTRA STOVE" seems to have almost brought another victim to his *ne plus ultra*, as recorded in the *Times* last week. To endanger life by the advertised assurance that any such stove may safely be used in a sitting-room without a chimney or a pipe through which the deadly "choke damp" of combustion may freely escape, implies either reckless and criminal falsehood, or a scarcely less culpable ignorance on the part of the advertisers and disposers of the article. A stove "not only smokeless but self-consuming" is an absurdity in the sense implied, namely, that it either will or can "consume" its own dangerous choke damp, or carbonic acid gas. No such stove either is, or ever was, or probably ever will be made. The actual process is in truth the very contrary of that into which it is designed, or at least likely, to deceive the public,—it is a "consuming" of charcoal, smoke, &c., into the dangerous agency, not out of it.



**PROJECTED WORKS.**—Advertisements have been issued for tenders, by 9th February, for the alteration and improvement of the Swan Inn, Kidderminster; and by 29th inst., for a survey and valuation of all the property in the parish of Christchurch, union of Whitechapel.

**HAMBURG TUNNEL ON THE HUDSON RIVER RAILWAY.**—The great tunnel at New Hamburg, says the *Evening Post*, connected with the Hudson River Railway, is nearly completed. It is a gigantic work, measuring 830 feet in length; at the south end is a cut 500 feet long, 30 feet wide, and 50 feet deep, all through the solid rock before reaching the tunnel, which is 19 feet high and 24 feet wide. Through the tunnel the passage is gloomy enough to represent the most dangerous regions, darkness being relieved only by the light of candles, and through two shafts sunk to it, one 70 feet in depth, the other 56, through which a glimpse of daylight may be obtained; but on emerging at the north end, one other deep cut is found, nearly as formidable as that at the south, being 200 feet long, and 70 feet deep, making the entire deep cutting through the rock, all inclusive, no less than 1,530 feet. There are 400 men employed on this work. Six thousand kegs of powder, of 25 lbs. each, have been used for blasting in fourteen months, and nine blacksmiths' shops are constantly occupied with repairing the tools, &c. The work goes on night and day with great expedition.

**ARCHÆOLOGICAL INSTITUTE.**—At last meeting, Mr. Overy in the chair, a paper by Mr. E. A. Freeman, "On the Anglo-Saxon remains in Iwer Church, Bucks," was read by the secretary. The Hon. W. Stanley then gave an account of recent discoveries in North Wales, and exhibited some copper mining tools and bones of animals, sent by Lady Brskine. The Rev. W. Haslam sent some notices connected with the Cornwall tin works. A discussion then took place on the early use of Arabic numerals in England. The Rev. F. Dyson presented a plan of the discoveries at Great Malvern. Various relics were afterwards exhibited, and amongst a large collection of *fac-similes* from sepulchral brasses, one, a portrait of the architect who erected the earlier portion of the church of St. Ouen, at Rouen, excited much interest from its striking design.

**CHELTONHAM AND THE BOARD OF HEALTH.**—We learn from the *Gloucester Chronicle*, that the town commissioners have issued a lengthy reply to Mr. Cresy's report, in the form of a memorial to the General Board of Health, and proceed to show "that the superintending inspector based his calculations with respect to the population and comparative mortality of the town upon imperfect and erroneous data—partly upon a statement said to have been drawn up by Dr. Wright for the Board of Guardians, and by them rejected,—that the whole of the report is calculated to convey an opinion that the town, instead of being one of the most healthy and agreeable residences in England, was one of the most objectionable,—that the remarks with regard to the supply of water occasionally exhibit unfairness,—that the plan proposed by the inspector with regard to the sewerage is surrounded with serious difficulties, if not actually impracticable."

**MURAL PAINTINGS IN ENGLAND.**—The January number of the *Art-Journal* (full of illustrations and interesting matter) contains an article on mural paintings in England, by Mrs. Merrifield. Alluding to the admirable state of preservation in which so many wall paintings are found in our old churches, the writer justly urges the importance of arriving at an exact knowledge of the mode of painting adopted, the medium, &c.

**DESTRUCTION OF HUMAN LIFE.**—In a paper recently read at Belfast, by Dr. Stevely, on the hot-blast furnace, it was stated, that of the men employed at this work, especially the "puddling furnace," not one ever lived beyond 28 years of age!—Can science do nothing in this case? It has done much in others similar.

**THE ROMAN REMAINS IN MOULSHAM.**—On account of the frost the excavations have been suspended for the present. Further traces of the villa, with coins, and fragments of tiles, pavements, domestic articles, &c., were turning up, and no doubt the search will be resumed.

**THE VIADUCT OF THE GREAT NORTHERN RAILWAY AT PETERBOROUGH ACROSS THE RIVER NENE,** will be a substantial structure; the bridge will be of cast-iron, formed by three arches, with a span of 66 feet each, resting on two supports, and sustained by twenty-four fluted pillars, fixed by atmospheric pressure. At the north end of the bridge, four brick arches will intervene between it and the embankment leading to the station at Sexton Barns; three arches of the same dimensions in the meadow will divide the bridge from the passage over the two railways running at a lower level, viz., the London and North-Western, and the Syston and Peterborough lines, which will be supported by twelve columns; and between this passage and the embankment to the south will be erected a series of nine arches, similar to those on the north.—*Lincoln Mercury*.

**THE INVENTOR OF THE BLOCK MACHINERY.**—Although, as your correspondent "N. R." says, too much may have been claimed for the late Sir M. I. Brunel as the inventor of the block machinery, yet Walter Taylor's apparatus for making blocks is believed to have been confined to some circular and reciprocating saws, and some boring tools,—so that many of the operations in the manufacture of blocks were performed by hand with more or less accuracy. In the manufactory at Portsmouth, on the contrary, invariable accuracy is given to every part of a finished block by means of appropriate machinery, most of it invented by Sir Isambard, not copied from Walter Taylor. Should your correspondent hold a contrary opinion, it is hoped he will redeem his pledge, and give a statement of the authority on which he claims the invention for Walter Taylor.—B.

**SMITHFIELD MARKET.**—The commissioners for inquiring into the state of the butcher-markets of London are proceeding rapidly with their labours. Their report, it is said, will contain a complete condemnation of Smithfield, on which, perhaps, an order in council may issue for its abolition. Should matters proceed in this way, says the *Athenæum*, there is talk of railway cattle markets being formed at the following railway termini:—Euston-square, Paddington, Shoreditch, and London-road. These four great markets are, if made, to be connected with each other, and with such other points of the metropolis as may be found necessary, by means of the electric telegraph, with a view to keeping each of them well informed, from hour to hour, as to the prices of meat and the quantities of cattle sold in the others.

**SANITARY STATE OF SOUTHAMPTON.**—Mr. Ranger, the superintending inspector under the Board of Health, has concluded his inquiry at Southampton. It lasted twelve days; in taking leave, the inspector commented in strong terms on the fact, that the parochial medical officers had refused him any aid; it was the first time, in the discharge of his duty, that he had had to make such a complaint. The mayor, clergy, and authorities, he said, had rendered him much assistance.

**VENTILATION.**—A correspondent of the *Mining Journal* says,—To obtain fresh and pure air from without is an easy process; but to get rid of the impure and mephitic air lingering near the roof is not so obvious. I use a trumpet-mouthed pipe, its orifice is at the ceiling. This, composed of tinned iron, enters the wall and descends the chimney, and its lower orifice, curved downwards, enters between the bars of the grate below; by reversing the orifice below, no ashes will enter the tube. All the deleterious air is thus withdrawn from the room and the space which it occupied and where it lingered, and is constantly consumed in the grate. This arrangement, simple and inexpensive, acts with all the power of an exhausting pump. A gutta percha tube might descend by the side of the bell-pull, and be connected with the fire below, by means of an iron or copper tube, while the gutta percha may be made sufficiently ornamental.

**SOCIETY OF ARTS.**—At an ordinary meeting on the 23rd inst., Mr. James Walker in the chair, Mr. A. G. Findlay read a paper on "Artificial Breakwaters, and the Principles which govern their Construction," which was illustrated by plans and diagrams, and by a model in mahogany, representing the system of structure pursued in the works at Dover harbour.

**DWELLINGS FOR LONDON CLERKS.**—Amidst the varied ideas and operations of individuals and societies, on the subject of domestic buildings, it is very desirable that the case of the London clerks should receive attention. We number probably some thousands of unmarried men. Spending the day in the service of our employers, we dine near the scene of action, and for the rest of our time the only thing we can call a home is a rented apartment. The disquietude and discomforts of a London lodging-house have been vividly exhibited by popular writers, and are fully admitted. But must we and our successors continue to endure these inconveniences? Would it not be possible to provide for us more comfortable, yet not more costly accommodation, at a rate affording remunerative profit to the capitalist? A building for such a purpose might offer chambers of varying degrees of eligibility and expensiveness, but it would probably be found that for the ordinary demand it might suffice to provide a single room of moderate dimensions, well appointed with fire place, closets, &c. &c., and opening widely on one side to a dormitory just large enough to contain a compact iron bedstead, and perhaps washing apparatus. There should be also convenience for keeping and preparing the necessaries for the morning and evening meals, and for dinner on Sundays: the requisite amount of female attendance might be supplied in the absence of the occupant by a "bed-maker" as at Cambridge. T. F. T.

**PRESERVATION OF MONUMENTS IN FRANCE.**—The Paris correspondent of the *Literary Gazette* says:—"In France there are commissioners and well-paid functionaries by the score to watch over public monuments, to restore and preserve antiquities, &c., &c. But according to all accounts, commissioners and functionaries not only cause the expenditure of a vast amount of money which might be much more advantageously employed, but positively perpetrate, either from ignorance or wilfulness, irreparable mischief. For example, one of the daily journals states as a fact that a little while ago some ancient and valuable frescoes were discovered in the church of *Notre Dame du Pay*. To display these frescoes, architectural repairs were made to the enormous amount of 400,000 francs (16,000*l.*); and when this was done, what think you the sapient architect, with the permission of commissioners and government functionaries, did? Actually, scraped out the frescoes!"

**WATER TANKS.**—In answer to your correspondent "B.," relative to water tanks, he will find Seyssell Asphalt the most effectual thing for laying the bricks in, and rendering the surface with afterwards; if the brickwork is 4 inches thick, laid in asphalt, with an outer 9-inch of common brickwork, it will stand by itself unsupported, of the size he mentions. I have tried this at Holland House, and it answers perfectly.—J. H. BROWNE.

**BATHS AND WASHHOUSES FOR THE POOR.**—We are happy to state, that at a very large and influential meeting of the vestry of St. Giles's in the-Fields and St. George's, Bloomsbury, held on the 14th inst., it was resolved almost unanimously, forthwith to erect baths and washhouses in these parishes, agreeably to the Act 9 and 10 Victoria, c. 74. We hope that other metropolitan parishes will follow so good an example.

#### TENDERS

For the completion of two houses, now in carcass (which must be very nearly all taken down), situate in the Clifton-road, Old Kent-road; and also for erecting six houses, 25 feet frontage, 24 feet deep, for Mr. E. Ball, advertised for competition in our paper of the 12th inst.; Mr. G. S. Corbett, Architect.

	Six New Houses.	Two Carcasses.
Beadle .....	£2,670	£710
Darby .....	2,162	800
Slade .....	2,022	610
West .....	2,010	630
Woodward .....	2,318*	—
Tarrant .....	1,730	635
Harris and Dean .....	1,525	320

For the alterations and repairs to seven houses in Bermondsey-street; Messrs. Castle and Jayne, architects. The quantities were furnished.

Wells .....	£1,390
Battenbury .....	1,228
Burt .....	1,810
Haynes .....	1,204
Coleman .....	985
Wills (accepted) .....	950

\* This includes carcasses.











# The Builder.

No. CCCLXV.

SATURDAY, FEBRUARY 2, 1850.

**F**ISH was an article of food of much importance in mediæval England, when abstinence from flesh was generally enforced at stated periods as a religious observance; and amongst the city guilds, or companies, the "Mystery of Fishmongers" stood prominent. Originally there were two fellowships, the Fishmongers and the Stock (or salt) Fishmongers. In the earliest document respecting them, letters-patent dated 10th July, in the 37th year of Edward III.,\* the first are called *Pissoners* (the document is in French) and the second "Stokfysshemongeres." In 1536, they were incorporated by the appellation of "The Wardens and Commonalty of the Mystery of Fishmongers of the City of London." The great antiquity of the Company is shown by the fact, that Edward III., in the earliest extant charter just now mentioned, confirms the grants *immemorially* made to them by his progenitors. They were amongst those Companies amerced in the reign of Henry II. (1154 to 1189), and in 1298, showed their great wealth by a splendid pageant in honour of Edward I.

This Company appears always to have played a chief part in the pageantries of the times. They preserve amongst their archives a very curious series of coloured drawings, illustrative of a pageant for the inauguration of John Leman, who was made a knight during his mayoralty, in 1616, and which were published by the Company, to their credit be it said, in 1844, in twelve plates, drawn by Mr. Henry Shaw, with an interesting historical introduction by Mr. J. Gough Nichols.† The Fishmongers' ranks the fourth of the twelve great companies. Their old meeting-place was taken down in 1827, when the improvements about London-bridge were going on, and their present hall was built soon after on the former site, where it forms the west side of Adelaide-place, an important feature at the foot of the bridge.

The amount of money expended by the London Companies for charitable purposes, would startle those who inquired into it for the first time, and the Fishmongers contribute a noble share. At Bray, in Berkshire, they have almshouses, known as Jesus Hospital, for forty people, six being poor men or women of the company, and thirty-four, poor parishioners of Bray. It is a quadrangular building, with a chapel, surrounding a court, and was completed in 1628.‡ At Harrietsham, in Kent, they have twelve distinct houses, known as Quedest's,—from the founder's name, which were rebuilt in 1770-72, at a cost of 2,470*l.*, where twelve poor persons, six of them being members of the Company, receive weekly allowances.§

Their most important foundation, however,

is that known as St. Peter's Hospital, and sometimes called the Fishmongers' Almshouses,\* for decayed members of the fraternity. The good work was commenced in 1615, by Sir Thomas Hunt, who left 20*l.* a-year towards building and founding an hospital for six men. Other donations followed, and in 1617 a piece of ground, in the parish of Newington, Surrey, was purchased by the Company, and twelve houses built at a cost of 400*l.*

The plot of land cost 110*l.* What is it worth now?

In 1633 six more houses were built, and a dining-hall. Then two, and afterwards two more. Then came a noble bequest from John Hulbert in 1721, being no less than 9,467*l.*, the residue of his estate, to build and found an almshouse for twenty poor men and women. The twenty houses were accordingly added, making in the whole forty-two; and many of our readers doubtless know the quaint old pile which they form, close by the "Elephant and Castle." It comprises three courts; has a dining-hall and chapel; and is surrounded by a low wall.

The site was then an open, healthy spot in the country, far away from the town. It is now in the heart of a crowded neighbourhood: the buildings, too, are dilapidated, and for these, or other reasons with which we are unacquainted,† the Company determined on the removal of the hospital to Wandsworth, in the same county, where the first stone of a new asylum, designed by Mr. Richard Suter, the Company's architect, was laid on the 23rd of June last, by Mr. W. Flexman Vowler, the prime warden.

The new building is now in course of completion, and we give in our present number an isometrical view of the south front of it.‡ It is placed on an open, airy site, at East Hill, on the northern side of the London-road.

The buildings occupy three sides of a quadrangle, about 255 feet by 235 feet; the fourth side opening towards the south, and upon the high road, whereby the whole will be distinctly seen. The back, or north front, has been designed to present a façade towards the Richmond and Windsor Railway, from which it is distant but a few hundred yards. There are forty-two dwellings, each comprising three rooms, with complete and distinct offices, also rooms for the medical officer, clergyman, paymaster, and pensioners, and a chapel in the centre. The style is Tudor: the chimney-shafts are large and lofty, and form a prominent feature in the design. The lower story of the chapel is appropriated to the payment of the pensioners. The whole premises, with garden, lawn, and shrubbery, when complete, will occupy nearly seven acres. The principal material is white Suffolk brick. For the dressings, Caen stone is used, which has received several coats of cold-drawn linseed oil as a preservative: we mention this especially, that the result may be hereafter observed. Although in the first instance the stone is stained by the oil, the weather soon bleaches it again.

So far as the building has proceeded, Mr. Suter has ably carried out the intentions of the Company. St. Peter's Hospital is as it should be, a sound and honest structure, well calculated to endure. We are not aware of the motives which prompted the departure from the general style of the buildings in the entrance gateway:

the inclosure, however, is not yet formed and this will probably be reconsidered. Mr. Jay is the contractor, and the cost of the buildings is estimated at 18,000*l.* The total expenditure will, however, of course be much more. "The amount we now annually expend in support of this hospital," said Mr. Vowler, on the occasion of laying the first stone, when he referred with justifiable pride to the liberal spirit in which the men of to-day are carrying on the good work handed down to them by their predecessors, "the amount we annually expend is not less than seventeen hundred pounds (formerly it was not more than 360*l.*), and whereas the entire cost of the old hospital did not exceed three thousand pounds, the entire cost of the new one will probably be twenty-five thousand."

We congratulate the Fishmongers' Company on their well-doing, and remind them of their ancient motto,

All Fellowship be to God only.

## FALL OF ARCH.—MODEL HOUSES FOR FAMILIES, STREATHAM-STREET, BLOOMSBURY.

ON Thursday in last week a serious accident occurred at the model houses in Streatham-street, Bloomsbury, now building under the direction of Mr. H. Roberts. The roof and floors here are formed—as we have on previous occasions stated—with flat hollow-brick arches. In our last volume (vii.), p. 326, we gave a plan of these model houses: on reference to that, a separate building will be seen, on the left-hand side of the open area, having about 34 feet frontage next the area, in three main divisions, a partition forming a passage having been omitted, and 19 feet deep. This building is five stories high including the basement. The arches which form the floors are of hollow bricks 9 inches long, 6 inches high, and 4 inches wide, turned in Portland cement, and they rise 8½ inches. The arches over the two end divisions on each story spring from an iron skew-back next the external wall, and from a stone core in the division wall, with two iron tie-rods connecting the iron skew-back and the stone core in each arch. The division walls are 9 inches thick, carried up for three stories in Portland cement, and above in mortar. The arches in the centre division have no tie-rods, the outer arch on each side being considered such an abutment as to render ties unnecessary. The whole of the arches were turned, with the exception of the arch for the two-pair floor in the middle division, which the men were then engaged upon. The arches for the roof, precisely similar to those for the floors, had been finished some time, and the men had just spread over them a layer of concrete and left them, when the centre roof-arch, 10 feet 6 inches span, fell in, broke through the arch under it, overwhelmed the men at work on the next floor, and brought down the two arches below. Three men were very seriously injured, but, we believe, are progressing favourably. The division walls, from which the arch sprung, were forced slightly outwards, the arch on each side broken, and the two external walls, strange to say—one 1½-brick thick, and the other 2½-bricks with recesses—rent away at both angles, at the top, from the front and back wall.

It appears that the piece of ground on which this building is erected was not obtained until after Michaelmas last. The work was consequently carried up quickly, but not sufficiently so to save the roof arches from the effect of the frost which set in almost immediately they were turned (Dec. 24th), and before they were covered.

The opinion of some interested in the matter is, that the Portland cement being frozen dry without uniting the bricks, became to a considerable extent rotten, and to this cause they attribute the failure of the arch when the concrete was placed on it, preparatory to laying the asphalt. It had been stated at the Institute by the architect only on the Monday before, that the strength of three experimental arches

\* Printed in Herbert's "History of the Twelve Great Livery Companies of London."

† This pageant, given on Lord Mayor's-day, 1616, and called "Chrysanalecta, the Golden Fishing," was devised by Anthony Munday.

‡ The average annual expenditure here previous to 1823, according to Herbert, was 856*l.* 10*s.*

§ The company have also schools, presentations to Christ's Hospital, exhibitions to students in the universities, money for loans to freemen, &c.

\* The fact that there are other "Fishmongers' Almshouses" (at Wood-green, Middlesex), founded by the trade, and not the Company, renders the retention of the ancient title more than ever desirable.

† The value of the land at Newington for building purposes would probably further justify the change.

‡ See page 54.



of about the same span and rise had been fully tested to upwards of four times the weight which would be placed on them if covered with people, and all the other arches in the main building, which have been turned from two to three months, stand. We may mention that the centres were struck on the 14th of January without the consent of the clerk of the works.

When the comparatively trifling weight spread over the arch is considered (the clerk of the works says two tons, but this is probably under the mark), the effect produced appears quite extraordinary. A financial question, if no other, will probably arise and lead to investigation, and we are anxious neither to exonerate nor attribute blame to any person on partial information. We would suggest, however, the desirability of inquiring, amongst other things, how far the *expansive power of concrete in setting* may have operated in producing this disaster. The force is irresistible, and it would not be a sufficient reply to say that the upper surface of the concrete being free, the force might have spent itself there innocuously. We have seen the brick walls of a lime-shed twisted and rent by the expansion of the lime in slacking, under similar circumstances.

We throw this out, however, simply as deserving investigation, and would not have it inferred that our eyes are shut to two or three other points in the inquiry. The contractor is Mr. Holland.

#### STRUCTURAL AND OTHER ARRANGEMENTS AFFECTING HEALTH IN PARIS.

The cholera has made in few places more considerable ravages than in this beautiful city; yet, although the majority of those attacked by it belonged to the poorer class, nevertheless the number who have suffered from it among that portion of the population which has at all times the best chance of escaping prevailing maladies, is much more considerable than might have been expected.

The condition of Paris is unquestionably much more salubrious than it was even years ago. We must, therefore, look to some other cause to account for the great influence of the disease. This, we think, will be found in what may be called the moral state of the population. The agitations of revolutions, and the excitements of party feeling consequent thereupon, have had their influence upon both rich and poor. It was remarked that the members of the Legislative Chamber were great sufferers in proportion to their number; but to the moral influences which affected them, must also be added an insufficient ventilation of the Salle in which they held their sittings, a fault, which, during the extreme heat of a French summer, would at any time be unpardonable: it has since been remedied. In addition, however, to these influences acting upon the class "well to do" in the world, the poor and working classes have suffered from want of work and consequent insufficiency of nutriment, with mental anxiety. The character of the food commonly taken by the population may also have something to do with it,—their thin sour wine, frequently much adulterated, the immense consumption of vegetables and fruits, the universal soup taking, and the variety of dishes which their system of cookery allows of.

Another leading cause, which will continue to operate for many years to come, in spite of the laudable efforts of the authorities to improve the salubrity of the town, is the narrowness of the streets, and the loftiness of the houses,—apartments being literally heaped upon apartments. Streets, with houses built in such a style, should never be less than 50 or 60 feet wide; whereas the majority of them have barely room enough to allow of the passage of two vehicles. Then again the mass of people living on a given spot is immense. We do not hear, perhaps, as in London and in other great English towns, of several families living in the same room, congregated together like cattle. Yet we shall find in the thickly populated parts of Paris, every little nook and corner, every little closet, however dark, occupied; such places containing a bed as we should think only worthy to stow away a few trunks.

Rent is in proportion to the closeness of the packing; and therefore to possess a house or

two in Paris is really to possess a fortune. The majority of the trading class are very badly off in point of accommodation. For a small shop in a leading street, 4,000, 5,000, and 6,000*f.* a-year are sometimes paid, with perhaps nothing at the back but a dark closet. Sometimes they have a few rooms just above the shop in the entresol, but that is rare; generally speaking the family possess an apartment or a few bed rooms quite at the top of the house, "au cinquième," or "au sixième," or it may be "au septième."

All this dense packing must have an effect upon health, independent of improved sewerage, increase of fountains, or mere cleanliness of streets. The insufficiency of light in narrow streets is almost as bad as insufficiency of air. And yet, taking all things into consideration, the Paris population is a healthy population; and this may be attributed, perhaps, in part, to their love of being out of doors, so far as their occupations will allow of it, and to the facility with which the country, or, at any rate, open healthful spots, may be reached on Sundays and holidays.

In proportion as the trading portion of the town is densely populated, so is that occupied by the richer classes for the most part thinly inhabited compared with the surface. Most hotels of the rich possess gardens; many of them large and beautiful. And thus, taking the whole surface, there is not to be found any town in which the population is more unequally divided than in Paris.

If we look at the actual superficial extent, we find it given as 39,910,000 square metres, or about 46,838,819½ square yards; making 9,677½ square acres, or 15 square miles and 77 square acres; and yet, on every side of the town, and always within the walls, we have extensive tracts without a house and even without a garden,—little deserts waiting for the encroachments of those pioneers of population, the bricklayer and the stonemason. More considerable portions still are laid out in gardens, some for luxury, some for produce; and the latter are abundantly supplied and enriched by the manures of various kinds which the town itself furnishes to the proprietors.

Now the population congregated within the walls, and for the most part heaped or huddled together within infinitely smaller limits, amounts to no less than 1,053,897 souls, giving apparently about 44 square yards to each individual. This consideration is, however, of little value under the circumstances we have stated,—Paris being hardly half the size it appears to be. The population without the walls, and forming what we may call the suburbs of the city, would give an addition of about 280,000.

To watch over the health of so large a community has been the object of the authorities for some years past, and pains have been taken to improve its condition.

The main objects of their attention have been the gradual widening of the streets, and the formation of new ones through its worst quarters; the enlargement of markets, places, quays, &c.; the improvement of sewerage, and the regular and rapid carrying off of the filth and dirt of every sort; together with an increase in the supply of water to an extent sufficient almost for the washing of every street.

In the first place, let us see what has been done with the widening of the streets.

During a period of 49 years, 68,000,000*f.* have been appropriated to that purpose; being at the average rate of 1,387,000*f.* a-year. This is perhaps not much, considering the amount of population, and the vast number of vehicles that are constantly passing at great inconvenience through every portion of the town,—a town containing about 1,500 streets, more than a fourth of which have barely twelve feet width of carriage-way! It has been calculated that, continuing at the same rate and method of improvement, it would require 160 or 170 years before the necessary changes could be carried out.

It is therefore evident that if greater progress is to be made in this respect, the concurrence of the state will be necessary, in order to get rid of those numerous little streets which, without sufficient air or light, must ever be the abodes of disease and the strongholds of every prevailing malady.

In opening new streets, in widening others,

in enlarging markets, quays, and thoroughfares, Paris not only benefits its health in a material point of view, but its prosperity is greatly and beneficially affected. In the very heart of the town, at that part where the Rue St. Honoré, the Rue Montmartre, the Rue Rambuteau, the Rue Montorgueil, and many smaller streets, almost run into each other,—a great change is going on. Five or six markets, including the Marché des Innocents, with its elegant fountain, which, by the way, is about to be repaired and restored,—are being thrown into one; giving air and light to a densely-populated neighbourhood, and ridding the quarter of some of the vilest old buildings, of the "Monmouth-street" character, but infinitely more picturesque, from their style, their height, and their antiquity. This project of uniting several markets in one is due to Napoleon, but it has undergone some modifications suggested by economy and convenience.

The sewers of the town have been improved; almost every part of it has been supplied with them, and they are kept constantly clean by men whose sole occupation is to pass through them and remove any impediments or accumulation of filth. It is true, however, that a vast quantity of filth, which runs into the London sewers, and is often allowed to accumulate there, and poison a whole district, is carried away in Paris, by other means, in the dead of night. Carelessly as this is sometimes done, and disgusting as it is to the unhappy passer-by, it is question if less harm be not thus done, than by allowing the sewers to carry it to pollute the river. Moreover, it would be thus lost as a manure, most valuable and remunerative. The system is nevertheless very bad, and in the thickly populated quarters, the constant escape of a noxious vapour upwards through the staircases of most houses must have a very injurious effect, and takes the place of the graveyards of London in producing disease. Each house has thus its own illicit fever-still. Law would be required to enforce improvement on the proprietors of houses, as they are notoriously too close-fisted to do it voluntarily.

Before dismissing this part of the subject, we may as well allude to a circumstance connected with the removal of the town filth, as denoting at the same time the active spirit of monopoly in everything which characterized the rule of the "bourgeoisie" and its king since 1830. Where the blame of the "spirit" lay, in the mind of the leader or in the class which supported him, we leave to others to form their independent opinion. All we know as a fact is, that an accumulation of monopolies ended in a revolution; and we have merely an anecdote to relate illustrative of the spirit which produced that fact.

An association of cultivators belonging to the neighbourhood of Paris has just been formed, having for its object the carrying away of all the dirt and filth of the town. As a manure, it is most valuable; and its abundance and the lowness of the price are conditions of vital importance to all concerned.

Now it so happens that since the year 1831 this business has become one of speculation in the hands of a single individual; and the effect of the monopoly has been to raise the price of the manure at least one-third. In short, the unfortunate cultivator has been compelled to submit to the exactions of the speculator, or his land would suffer from want of the due supply of enriching matter. In consequence of this, the price of every agricultural production has increased in the Paris markets, and the whole population has suffered for the interests of a single individual.

The actual business of removing this valuable material from the town is made in the name of the "entrepreneur général;" but, in point of fact, it is the cultivators themselves who buy at a high price the privilege of employing their carts for the purpose. They have all the trouble and expense, and the speculator all the profit.

In order to put an end to this, 594 cultivators have formed an association in due legal form, and have made an application to those in authority for a concession of the now monopolized privilege from the 1st of September, 1850, the period when the present "entrepreneur's" right terminates.

While on the subject of manure, and its



value to land, from which, from its proximity to a great town, much is expected, we may be excused an observation or two relative to the price the latter will fetch. The country people hold their small properties with great tenacity, and it is not easy to persuade them to part with any portion, however trivial; we have known 12 perches of land to sell for 60*l.*, and half an acre for 10,000 francs, or 400*l.*, within 14 miles of Paris.

The third important point connected with the health of the town to which we have alluded, is the supply of water. Not only have the larger fountains been increased in number, but in every street at almost every hundred yards are small fountains placed, which play two or three times a-day. They afford an abundant supply for watering the streets in the heat of summer, and are at the same time a means of cleanliness, which those who know Paris well can fully appreciate. The fresh, clear water, after running through the streets, finds its way into the sewers, which likewise benefit by the supply. The offensive odours, particularly in the narrow streets during warm weather, of which strangers so complain, have much diminished, both in frequency and intensity.

In addition to these sanitary improvements, we might name the "*Cités Ouvrières*," as an instance of the anxiety to ameliorate the condition of the class which most suffers in health. All over the world the working class is infamously provided for, and as they are a dependant and, in some measure, a helpless class, the victims of the knavery and overreaching of others, they have hitherto had the blame, as well as the plague, of their position to put up with. They have not time, it is true, to brush their nails, wash their teeth, or curl their hair; indeed, they are up, most part of the year, before it is light, and mirrors do not abound in their apartments; but that they are capable of civilization, or, at any rate, of very sensible sober amelioration, has been proved by their preference for improved lodgings wherever they can get them; and we think there can be little doubt but that their manners and habits must be very considerably benefited by the change. At all events, it has been remarked of late years, that certain wretched districts, formerly exclusively inhabited by the working class in Paris, have been almost deserted for more healthful and better-built quarters. Still the system of imposition carried on by the landlords here, as it is in every other part of the world, towards that particular class, calls loudly for remedy; and therefore has sprung up the beneficent idea of the "*Cités Ouvrières*," to provide for them healthful habitations.

The Society for the Encouragement of National Industry has granted a medal of gold worth 3,000 francs to M. Leclaire for his substitution of white of zinc for white of lead. Thus we see that something is really and seriously done to ameliorate the general health. It appears that from 1838 to 1847, no less than 3,142 persons entered the Paris Hospital, attacked by disease originating in the use of lead. Of these, 1,898 persons worked at white of lead or at minium; there were also 712 painters, 63 grinders of colours, and 10 preparers of visiting cards with a porcelain surface. Since 1846 no person has been attacked in M. Leclaire's establishment.

There is a very useful regulation forbidding the existence of certain establishments of a dangerous or a noxious character within the town; or, indeed, within a given distance of any inhabited houses. One nuisance, however, still remains here, and that is, the melting of tallow, which is particularly disagreeable in the neighbourhood of the abattoirs. The inhabitants very justly complain of it. There is no reason why it should not be removed also outside the town. These splendid establishments cost about 20,000,000 francs or 800,000*l.*, and bring to the town a revenue of about 1,000,000*l.*, or 40,000*l.*

We might say something in regard to the state of the prisons, which, owing to their crowded state during late events, have proved (several of them) to be as insufficient for their purpose as dangerous for the health of those detained. M. Dupin described one of them, the *Dépôt de la Préfecture de Police*, as "*une mise en fourrière de l'humanité*," and what makes it worse is, that the individuals there incarcerated are only accused persons, very

many of whom, in troublesome times, are arrested by mistake or suspicion merely. Cholera naturally declared itself in such a place, where there is not even a court for them to take air in, and where on one occasion, lately, sixty women were confined in a room hardly large enough for thirty of them. The majority of the prisons form an exception to what we find at the "*dépôt*," and will, for wholesomeness and management, rival the best establishments of the kind in the world.

#### THE LAMENT OF TWO ARTICLED CLERKS.

"ARE the columns of *THE BUILDER* open to receive a detailed account of the grievances to which architects' clerks are subjected?" is a question that has often occurred to the minds of the two individuals who have at length ventured upon putting the matter to the proof, and addressing a few lines to you, in the hope that they may provoke attention from your editorial pen, or, at least, from some one or other of your numerous contributors. Our claims to sympathy are indicated by your correspondent "*J.*" who, in describing the characteristics of "one order of architects," says "he devours pupils." Oh, Sir, our eyes fell upon that sentence, we looked at each other, and simultaneously exclaimed, "We are devoured!"

The fall of an apple set the great philosopher, Newton, thinking, as to the cause, and thus opened out the discovery of the laws of attraction; in like manner did that word "devours," set us thinking. The cannibal fury of that word seemed to strike a sympathetic chord within our breasts, and led us to ask, "Why are we devoured?" But, not having been taught to think, and experiencing a great difficulty in bending our minds with strict attention to the consideration of the question, we thought it the simplest, safest, and *easiest* way (there, Sir, was the charm) to go to *THE BUILDER*, and state at once our troubles, and learn from you, Mr. Editor, the "why and the wherefore"—to make use of familiar colloquial English, which, after all, suits us the best—an architect "devours pupils." Our respective "governors" have paid a premium for each of us, upon the faith of the understanding that our master was to teach, or cause to be taught to us the various branches of knowledge necessary to enable us in due time to practise as architects and surveyors. The lawyer who drew up our articles was not aware of the scruples of the Institute, or, of course, he would have left out the latter word. Nor, as things have turned out, would the omission have been of much importance, for although three out of our term of five years have expired, we have learnt nothing of surveying. We certainly have seen the rods, and we have a recollection of a period in the early part of our pupillage when we dragged the chain, but as to knowing what "field books" are, or "offsets,"—we do not; and we may as well own it at once.

Our master does not belong to the "classic" architects; he designs churches, parsonages, and schools, in the "Pointed" styles. But, although he himself understands the differences of the last-mentioned styles, he has never taken it into his head to explain these differences to us. You will scarcely credit us, Mr. Editor, but we assure you it is a fact, that until very lately we did not know Decorated from Early English, nor Early English from Perpendicular. Even now we are sorely puzzled with Plain Decorated. However, we had the information upon good authority (not our master), that a certain building was Plain Decorated, and we believed it, though we did not understand it.

We omitted to state, in the proper place, that we have drawn "the orders," Ionic volutes, &c. Trace, trace, trace; we keep tracing away, and that is all that we do, or almost all; for sometimes, but very rarely, we get a bit of "inking in," and now and then a specification or quantities to write out. That our vassalage, our serfdom, will expire before very long, animates us with hope in one point of view, since we count the days off as eagerly as ever we did when at school, in the expectation of the holidays. But then, again, we reflect that every day diminishes likewise the opportunity of being taught. Our time for learning gets

also less and less. And this consideration "gives us pause."

We have sat for a long time with our hands before us—to speak figuratively—and now we really think it is high time something should be done. Can there be others in the same unhappy plight as ourselves? Yes, perhaps there are, or what means "devours pupils?" How can they be devoured except by having their time monopolized, and by being converted into willing slaves and lacqueys, while no effort is made to teach them anything connected with (what should be) their profession? Give us a hearing, Mr. Editor, and, what is more important, give us your advice. Relying upon you, we humbly take our leave, and beg to subscribe ourselves,—Yours, &c.,

A. B. and C. D.

#### COTTAGE BUILDING.

IN connection with the conversation which took place after Mr. Roberts's paper was read at the Institute, I would add, touching the arrangement and accommodation required, that in practice I have found,—

1. It is not desirable to have a lath and plaster ceiling to the ground-floor of cottages, but that it is essential in the upper story, where it tends to equalize the temperature throughout the year: in the ground floor it is worse than useless.

2. The mania for cleanliness in England is a reason why tiles or bricks are not fit for floors. The quantity of water which they absorb during the process of washing them is so great, that the evaporation is unhealthy: plaster is as bad, stone is better, asphalté better still, and wood best of all. Abroad, tiles are found useful, it is true; but how often are they washed?

3. No living-room should have a bed in, or a sleeping closet only lighted from it: there is hardly any worse feature in any "model design."

4. Wet clothes are the hereditary curse of the labourer; and in a well-arranged lodging he should be able to place them where they will be dry ere he next wears them. For this purpose a niche in the chimney is desirable, with a door to it, and an opening at top and at bottom into the flue. This is best contrived by building the opening at least 2 feet 10 inches too wide, and putting a half-brick partition into the breast; or it may be got behind a fire-place in many cases.

5. All rooms should have chimneys, and where none can be got a zinc rain-water pipe and head reversed does very well instead.

6. All grates should have hobs, should not be too large, rarely exceeding 12 inches in the width of the fire, which should have sloping sides, and the opening had better be wider than the stove—i. e., if this be 3 feet, then 3 feet of aperture, to be made up by brick-work: look at any cottage fireplace for the truth of this.

7. As Mr. Sydney Smirke observed, the hearths should be of cast-iron, as least likely to break.

8. The privy and pantry should be as rarely back to back, without ventilation or a brick wall between them, as a privy and bed-room, to say nothing of bed closets.

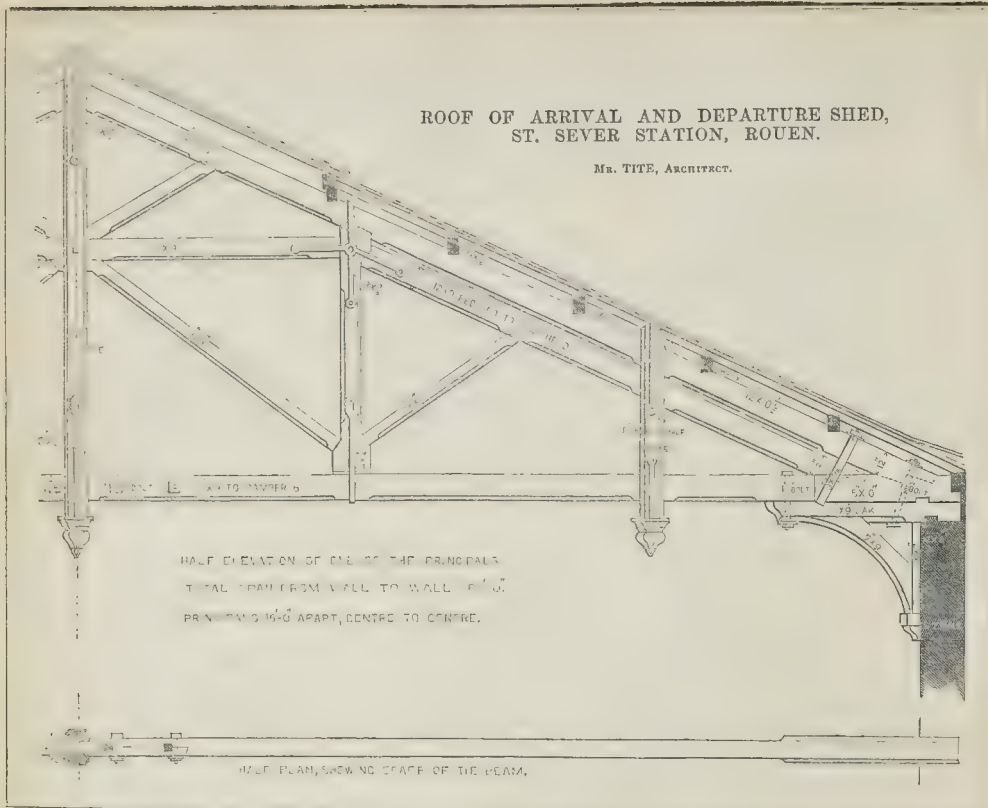
9. As to sashes of wood or iron, the latter, hung on centre pivots, are the best of any sort in my opinion for the purpose.

10. Norfolk latches are best (as children cannot open them), when they are not intended to go in or out, but worst when children cannot get out in case of accident.

J. W. PAPWORTH.

We have received a letter from the author of the cottage design to which the Royal Agricultural Society awarded their premium, commenting indignantly on Mr. Roberts's condemnation of his plan. We are unable to give more than the last paragraph:—"In the hope which he is pleased to express, he will be disappointed, for several cottages are in course of erection (the numerous letters of recommendation which I have received lead me to anticipate that the design will be extensively adopted), and when they are finished and occupied, will bear ample testimony to their efficiency for "promoting the improvement and condition of the labouring classes."





#### ROOF OF THE ST. SEVER STATION, ROUEN.

This roof is a very fine piece of carpentry; but it would, perhaps, have suited England better than France. The scantlings are all stronger than the French slates require, and are, moreover, calculated for the use of Baltic timber, the most expensive sort of fir.

A small change in the detail would also have been desirable. Instead of the bolts in the vertical scarf, one stirrup at each end would have been preferable. Perhaps also vertical scarfs are more likely to warp than horizontal ones.

This roof requires some means of preventing the whole framing from warping. The purlins effect this object at top: two struts at the feet of the queen-post would have done so had they been introduced at the bottom. The purlins are trussed with wrought-iron.

B.

#### THE EXHIBITION OF INDUSTRY FOR 1851 AND OUR PUBLIC BUILDINGS.

The great experiment that is now about to be tried, or rather, it might be said, the great foundation that is about being laid for the furtherance and promotion of the arts, sciences, and manufactures of this country, and calling into competition that of every country of the known world, is an epoch that will be a beacon and guide to all future ages; it will proclaim to the world that England has at length raised her proper standard, and that that standard has inscribed upon it, "Peace and good-will to all."

It will, likewise, be an assurance of the confidence all nations have in her honour and integrity in committing to the care of this country the valuable discoveries in arts and sciences, and, withal, an accumulation of wealth such as perhaps would be fearlessly placed in the charge of no other country in the world. What, then, is to be gathered from all this? Why, the conviction that for ages we have been expending our blood and treasure in rapine and war, instead of reaping the enjoyment of peace with all its accompaniments;—that other countries

have been placed in a far worse position, that wealth incalculable, the produce of great labour and toil, has been fruitlessly wasted in creating misery, perpetuating ignorance, and sowing the seeds of every evil the world could inherit. What, then, must be the feeling of every man anxious for the good of his fellow creatures, in contemplating the glorious prospect apparently about to dawn upon the civilized world? A commission has been appointed of names every way unexceptionable; and it only remains for the people of this country, by their bounty and goodwill, to render the termination of the labour both happy and glorious.

We some time since announced that a commission would probably be proposed for the general superintendence of public buildings sanctioned by Parliament. Under the auspices of such a commission our public edifices will be well and properly considered, the expense borne on an easy plan, and our posterity have an example set them by which the country may be enriched, and leave no feeling of disgust or regret at ill-digested schemes, or the still greater annoyance of important ones being shorn of half their beauty and value by a parsimony forced upon us by other great and pressing demands. It was observed, we are not erecting such buildings as the Houses of Parliament for the present generation; and why, it may be fairly asked, should the present generation be called to bear the entire cost? Let the proposition of creating a fund be adopted, and the country annually charged with the interest, and a further charge for its redemption at some remote period; let the commission be composed of men of every shade of politics, having regard only to their fitness for the purpose.

It is morally impossible these works can be properly carried on by the present scheme of superintendence. The limited powers (to go no farther) of the Office of Woods, makes it wholly inefficient: it is quite sufficient that department should take charge of public buildings when completed. It would be of the greatest advantage that the least possible impediment

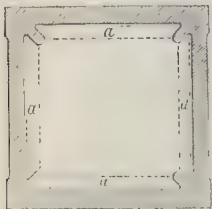
should be placed as a bar to a public work, when it is borne in mind that tens of thousands depend on that source for their daily subsistence; and if the state of our finances will not justify the riddance of the duties on materials used for building purposes, a drawback for these duties might surely be allowed for all public purposes: thus the profit on these duties would be saved; but if the whole were abolished, together with the tax on light, it would be found the country in every way were gainers. It cannot be sound policy to levy taxes by which labour is diminished. Man is to live by the sweat of his brow. Every facility should be afforded of giving that employment which a righteous and bountiful Providence has decreed to be the lot of mankind.

A meeting of the City merchants, bankers, and traders, was held at the Mansion-house, on Friday week, in support of the industrial exhibition of next year, and to open a subscription in aid of its objects. The meeting was a highly-respectable one, and included various members of the Government together with the Premier as a City member of Parliament. His lordship, in addressing the meeting on moving one of the resolutions, said, that with respect to the contemplated exhibition, its object would be to prove how the arts and benefits of peace were to be improved,—to show that, while some men were carrying to great perfection the arts of destruction, there were others who taught how mankind might have better and cheaper articles of clothing, how every house might be better furnished, and how people might be able to communicate with one another from the most distant parts of the world, and reciprocate all those things which improve, civilize, and elevate the character of man. The Lord Mayor, Messrs. W. Cotton, J. Dillon, R. Currie, Salomons, Labouchere, and S. J. Lloyd, Baron de Rothschild, Lord Robert Grosvenor, Earl Granville, and Sir J. Duke, also addressed the meeting; and a long list of subscriptions, amounting to upwards of 10,000*l.*, was read, and has since been published.



## HOLLOW BRICKS.

As the question of hollow bricks is at present attracting attention, I beg to send you a section of a hollow brick, which combines many advantages, and may be moulded as easily as any other form. The angle-ribs in the inside give strength and surface at that portion of the joint, and enable dowels *a a a* to be inserted on any or all sides to close the joint.\* By this means a continuous



flue, perfectly tight, may be formed. Two of the external faces are even and plain, two are partially recessed: these latter are supposed to be the beds, or side joints, as the case may be, and the slight sinking is to relieve the hollow side and thin portion of the brick from undue weight or bearing in the work,—to bring this upon the solid edges, and also to act as a slight lock, or dowel, with the cement or mortar. The bricks also burn truer with this arrangement, and any inequality or outward swell in burning is not so injurious as it would be on a surface without such sinking. The joint dowels will only be required where one surface or more is exposed, or where any particular course requires to be made into a continuous flue for ventilation, or any other similar purpose. For partitions, or for lining external walls, where plaster is to be used, the dowel will not be required. The section shown is square, but any other form of section is as easily moulded by the machine, and may be adopted. In arches of short radius the exact form can be given. Tiles or bricks of this description, if for cottage floors, may have the upper side stronger than the other side. Thus, a brick 6 inches square may have three sides  $\frac{1}{4}$ ths of an inch thick: the upper side should not be less than  $1\frac{1}{4}$  inch thick. There is no practical difficulty in effecting this: I have had such made.

Where these bricks are required for ventilation, any form of opening may be made in the sides, after the clay has been partially dried, and before it is burned. The underside of a ceiling may be perforated either with circular or slit openings, one or more in each tile, so as to insure diffuse ventilation. The open ends of the bricks may be connected with a shaft, or shafts, to insure a proper outlet. Earl Grey has covered some of his cattle-sheds at Hawick with bricks of this description. The outside of the arch is coated with asphalt, and forms a roof perfectly dry.

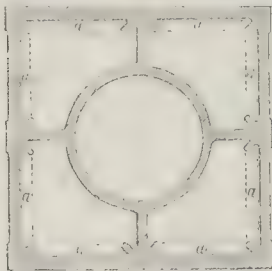
Hollow bricks offer to the architect many and singular advantages. They may be made cheaper than common bricks; they require much less clay. The material is finer, more compressed, and much better burned, as there is a fire-skin<sup>†</sup> within and without. Hollow bricks require less drying, and less fuel to burn them. They are also lighter for carriage. Floors and partitions may be constructed fire-proof at the least cost of material: timber partitions need not in any case be used on account of weight. External works may be lined with the hollow bricks instead of being battened, so that rot will be prevented. For conservatories they may be used with singular advantages. Heat may be passed through every portion of both floors and walls.

The hollow bricks may be cut to any length with the same facility as a common brick, with ordinary care. A sharp-pointed hammer may be used to nick them along the line of proposed cut, and they will then break off at such line. Or a certain number of the bricks may be nicked across before they are burned, when

they can afterwards be divided as required. When the bricks are required for plastering, such as inside partitions or ceilings, the sides may be grooved or roughened by the die, so as to afford good hold to the mortar on the broader bed than ordinary brickwork presents.

Hollow bricks may be made 9 or 12 inches square, and from 1 to 3 feet long, the strength of the solid material in no part exceeding  $\frac{1}{2}$  or  $\frac{3}{4}$  of an inch. The section in this case will be compound, or chambered, not unlike some of the beautiful chambered shells, the nautilus, or more beautiful fossil ammonite. For floors, arches, and walls, where size and lightness is required, this form of section offers many facilities.

Barracks in India may be constructed with such bricks, as clay properly treated, which would not mould and burn into the solid brick, will make this form of brick. The weight may be four-fifths less than solid bricks.



Dowels may be inserted at *a a a a*, &c.

Bricks of this section have been made 9 inches square and 2 feet long; equal in cube capacity to fifteen bricks each.

ROBERT RAWLINSON.

## RAILWAY JOTTINGS.

CONSIDERABLE damage has been done by fire to stations at Colchester and Gloucester. An engine-shed belonging to the Eastern Union at the former, and containing three of the company's best engines, took fire on Friday week, and was entirely destroyed; loss estimated at nearly 2,000*l*. The fire originated with a stove. In the other case, a wooden building, containing a furnace, where smiths' work was done, took fire by the overheating of the furnace, and was also burnt down; estimated loss at least 1,000*l*. It is said to be "a singular fact, that a similar fire occurred on the same premises about eighteen months since;" but the only singularity seems to be that two fires only should have occurred in course of eighteen months in such a building.—The Admiralty and the Holyhead Company, it is said, have come to an open rupture. The company purpose to withdraw their boats, and discontinue a passenger train.—Circumstances showing the urgent necessity of providing footways or a regular beat for guards or watchmen along trains in transit are constantly occurring. No less than three such cases of urgency now happen to attract our attention at one and the same time. A correspondent of the *Times*, in describing a recent accident on the East Lancashire, in which some carriages in a train ran off the line, and were dragged for nearly a mile before the crash came, states that during all this perilous and most alarming crisis, six passengers were in vain attempting to attract the guard's attention; and he suggests the old difficulty,—signals, to be attended to by the guard with "notice to the engine-driver if such notice be necessary." Now we have again and again shown, that in many instances the guard can only judge of this necessity by coming within ear-shot as well as eye-shot of the passengers signalling; and, besides that, in many cases of the greatest necessity for his watchful presence near the passengers, no such signal can or may be given. Witness another of the instances now under notice—namely, the drugging of a passenger by thieves in a carriage, where he was robbed at leisure, on the way from Sheffield to Doncaster. In the third of these recent instances, another ruffian attempted to outrage the per-

son of a girl in a train while running from Newcastle to Tynemouth. Can it be supposed for a moment that such places as railway carriages would be chosen for the committal of such crimes, if it were the regular practice for watchmen to traverse the trains while in transit? Yet, under present circumstances, and quite recently, even violent murder had been committed in a train, deliberately chosen for the purpose, as already instanced, simply because the isolation effectually prevented all interruption, and the noise all chance of cries for help being heard. It is full time the recommendation of the Railway Commissioners, based primarily on our own humble efforts, in this case, were carried out; and a recent project of the North Kent Company, if properly realized with this view, appears to afford a good occasion for the adoption of such a necessary system of espionage. The directors have given orders for the construction of several carriages, one of which is completed, capable of holding ninety-six persons. They are built in four compartments, with seats for twenty-four persons in each. A train of large carriages, too, it appears, requires much less power for propelling than those now in use—an argument with Directors which we hope will prove of more force than that based on the public safety, comfort, and convenience, has hitherto proved to be.—The German papers state that Mr. Gunther, head of the locomotive factory at Neustadt, near Vienna, has solved the problem relative to the ascent of trains on inclined planes; and built an engine which will draw, with ease, a train of 50,000 cwt. up an incline of 40 to 50 degrees.

## A NOTE FROM CORK.

THE Cork School of Design is now in full operation; it was opened on Monday, the 14th, when an inaugural address was delivered by the principal master, Mr. Willis, upon the nature, objects, and influence of schools of design, and containing some interesting historical notices of art and artists in Ireland. There was a numerous and respectable auditory assembled in the lecture room of the Royal Cork Institution. Some *ecclat* was attached to the occasion, by the presence of the mayor, aldermen, and town councillors, with their insignia of office, and several of the new college professors.

The Directors of the Royal Cork Institution, have given a large suite of rooms for the use of the school; they have also given the use of their collection of casts from the antique, presented to that body by George the Fourth, which were originally a present to that monarch from the Pope. The government has given 500*l*, the corporation of Cork 200*l*.

The head master, Mr. Willis, is a native of Cork; the assistant master is Mr. Knight. There are already more than 100 pupils in the school.

The new church of St. Nicholas is nearly completed, and will be opened in March.

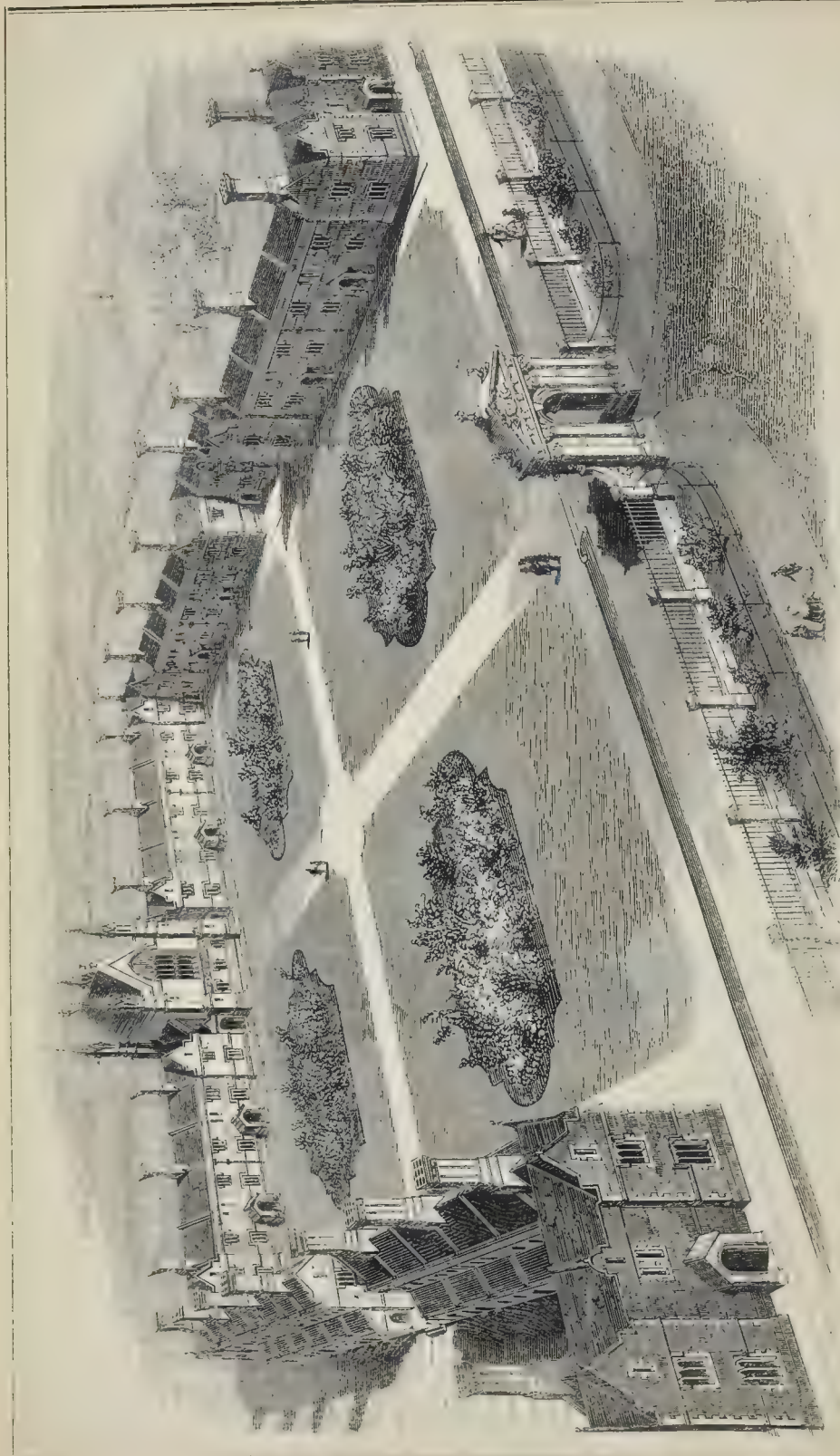
The new church of Ballymodan, Bandon, which was consecrated two months since, was closed in three weeks after its consecration; it was discovered that the dry rot had made considerable devastation in the flooring of the body of the church: the consequence is, the whole has been taken up. The want of proper ventilation under the flooring has been generally considered the cause: this is being now remedied. A correspondent says, "the doings of the ecclesiastical commissioners and their architects in Ireland, have been a fruitful source of discontent and jobbery. Efforts are being made to awaken the authorities to the sanitary condition of the place. We are in an awful state here, with every natural facility to ensure efficient drainage, cleanliness, and water supply."

LIVERPOOL ARCHITECTURAL SOCIETY.—At a meeting at the Royal Institution, Mr. Charles Barber in the chair, a paper was read by Mr. Horner, on the "Legitimate Use of Rustication" in architecture. A discussion followed, and Mr. C. Reid stated that the Town-hall of Liverpool presented one of the oldest specimens of rusticated architecture in the north of England.

\* The bricks may be made 4½ inches square, or 6 inches square: any of the sides may be perforated for purposes of ventilation.

† Coat-iron is known to be stronger as the section possesses more or less surface, or fire skin, to the solidity, other things considered.





ST. PETER'S HOSPITAL, WANDSWORTH.—MR. R. SUTER, ARCHITECT.



PROVIDENT AND FRIENDLY SOCIETY  
FOR BUILDING AND ENGINEERING  
WORKMEN.

The committee of gentlemen appointed at Guildhall, on the 11th of December last, to consider the best means of promoting the scheme, having resolved on certain propositions, addressed a circular to the master builders of the metropolis, requesting them, with some of their foremen, to meet the committee, on Friday last, the 25th January, in the lower-room, Exeter-hall, to confer upon the subject.

The interest felt in the question was shown by the crowded state of the room, which was soon filled with builders and their foremen, to the number of nearly 400. On the platform were Professor Cockerell (in the chair), Messrs. Angell, Bunning, Hardwick, Roberts, Tite, Walker, Baker, Cubitt, W. Cubitt, Lee, and Sheriff Lawrence (of the committee), together with Mr. Hickson, Mr. Johnson, Mr. Munday, Mr. Ansell (actuary), and many others.

The Chairman opened the proceedings by advertising to the large number of existing benefit societies, and their numerous defects and failures from insufficient tables and malpractices. The formation of a Government Board to advise those who desired to join such societies had been suggested, and the committee believed it was in their power to do something of that nature. They disavowed all idea of a charitable institution, or of interference with any other societies. They assembled now as men should meet man, on a perfect footing of equality, and as craftsmen grasped his brother craftsman by the hand. Their first proposition was "That a fund be raised and sustained for the purpose of affording gratuitous advice, information, and agency, to workmen desirous of investing their savings in government or other valid securities. Also with a view to aid them (by temporary loan or otherwise), when by reason of sickness, accident, or want of employment, they might be unable to keep up their periodical payments." The committee would provide the fund referred to, and "open an office, and appoint an agent to communicate at convenient hours with workmen, and to receive the periodical payments." The second proposition was, "to recommend and assist workmen in effecting deferred annuities, under the Savings Bank Act, 3 and 4 Wm. 4, c. 14," which the committee regarded as the best mode of securing provident savings. To effect these contracts with Government, especially by means of weekly subscriptions, much agency was necessary, and that the committee would provide. The great advantage of this investment was, that the whole of the money invested would be returned to the party at any time he might wish to withdraw it, or would be paid to his representatives in case of his dying before the time fixed for the commencement of the annuity. Thirdly, they proposed "to bring within reach of workmen the advantages of life assurance, enabling them to secure to their representatives, at death, sums as low as 10l." The committee now invited the co-operation of the masters, and also suggested that the foremen should form a committee among themselves, first, to consider the matter fully, and afterwards, if they approved of it, to aid and co-operate permanently with the original committee, sitting with them at the same board on equal terms. He trusted they would dismiss from their minds all coldness, reserve, and unkind suspicion, and accept frankly and cordially this proffer of friendship from the committee. He attributed the failure of a similar project at Liverpool to the fact that it was promoted only by the master builders. The proper independence of the workmen,—that feeling which was so honourable to originate with their employers; but in this case the most eminent architects and engineers had united with the distinguished master builders whom they saw present (of the purity of whose intentions there could be no doubt); and if they now secured the aid of the foremen and workmen generally, it was impossible for the society to fail. If they could carry out this noble object, he conceived they would restore the ancient renown of the beautiful institution of Freemasonry, which had existed more than 1,200 years in the respect of all mankind, from end to end of Europe. Formerly that glorious institution made friends and brothers of all men; but in respect to themselves as craftsmen, it had declined in some measure since Sir C. Wren left the society in 1717. Let them now see if they could not do something honourable to the craft, truly advantageous to all classes connected with building and engineering, and calculated to benefit the widow and the orphan. He concluded by moving the following resolution:—"That this meeting approves of the suggestions offered by the Committee at Guildhall on the 11th of December, 1849, and requests these gentlemen to proceed to organize an institution to carry out the propositions contained in the printed circular."

Mr. Baker seconded the resolution. He hoped

that the exertions of the worthy chairman, aided as they had been by those around him, would accomplish an object which had long been wanting. Alluding to the plan of deferred annuities, he admitted that the workman might obtain these annuities without the aid of this society; but by the agency proposed, an annuity of 20l. might be obtained at a cost of 12 per annum less than it could without such agency. Now, they were justified in expecting that 8,000 or 10,000 workmen, at least, would adopt this system of investment; therefore this society would be the means of saving, or putting into the pockets of the working classes, the sum of 10,000l. a-year, in addition to which they would have Government security, which he need not say was the best of all security. If at any time a deserving workman—a man of good character—should be prevented by illness, or otherwise, keeping up his payments for a deferred annuity, the Committee would be always ready to assist him to do so. These were some of the advantages proposed, and it was for the foremen, who possessed so much influence with the workmen, to aid the committee in carrying it out.

Carried unanimously.

Mr. Tite said, that although the unanimity with which the resolution had been carried proved that it had the full assent of the meeting, the committee were anxious to have something more than a mere silent assent to their suggestions. They sought, indeed, the entire co-operation of those whom they saw before them, to enable them to carry it out effectually and usefully. Government deferred annuities could only be obtained, under ordinary circumstances, by annual payments, or payments at some long intervals, but this society would be enabled to procure them by the weekly savings of the workmen, and in effecting that object the co-operation of the master builders was essential. Having obtained that, they now desired the earnest co-operation of the workmen also. Mr. Tite eulogized the advantages of life assurance, which, by the plan proposed, would now be opened to the working classes. What the committee sought was an assurance that they were in the right path, and that they were rightly appreciated by the skilled and excellent workmen of London, and he begged to move, "That a committee of foremen and workmen be appointed to confer with the Guildhall committees, and aid in the object proposed."

Mr. T. Cubitt seconded the resolution. He thought the proposed committee the best mode of accomplishing the object in view. They were especially beholden to the chairman, who had stepped out of his way in his regard for the interests of those whom it was more the duty of such as himself, the master builders, to look after. They were aware it was a difficult matter to invest small savings advantageously, but he thought there could be no better plan than that proposed to the meeting; and now that provisions were cheap, and there was no great want of employment, he believed that the working classes would be glad to avail themselves of it. The committee would advise and assist them in every way, and provide funds for the necessary expenses,—their object being that the whole of the money saved should go to the benefit of the person making the saving. They wished to see the working classes better their condition, and provide for a rainy day, and they would give them every assistance in doing so, but at the same time without giving to the society anything of the nature of a charitable institution.

Mr. Kaye (foreman), said, he could account for the silence of those around him, by the diffidence they felt at meeting, for the first time, the many honourable gentlemen who graced the platform. No person could deny that the scheme proposed was a good one, and that a vast deal of credit was due to the chairman and the committee. He only wished that such a meeting as the present had taken place when he had been a younger man. He was sure it would greatly tend to bring about a better feeling between the employer and the employed. He himself already belonged to a benefit society, and it was true that the proposed society could not apply to every individual; but if only one-tenth of the workmen in the metropolis could be benefited by it, it would do a great deal of good. It was more applicable perhaps to young, than to middle-aged men. A man of his own age, 41, must pay a large sum weekly to obtain an annuity at all worth having fifteen years hence; but if he could only, by saving a small sum weekly for that period, ensure half-a-crown or three shillings a week, at the age of 55, he would have done some little good. He highly appreciated the scheme, and begged to thank the committee for it, and having broken the ice, he hoped some of his friends would express their opinions upon it.

Mr. Ansell (actuary), being invited to address the meeting, adverted to the great advantages of deferred annuities, and illustrated the evils attending the failure of many existing benefit societies, by reading some extracts from a balloting list of the "Benefit Societies' Asylum,"—an institution formed expressly to assist those who, after contributing for many years to these societies, found, when they

became claimants upon the fund, that the society was insolvent or dissolved. The applications from those who had so suffered, for the benefits of the new asylum, were very numerous: amongst them were persons who had subscribed twenty-one, twenty-nine, and thirty-one years to different benefit societies, since dissolved. In the institution now contemplated it was not proposed to depend on the uncertain funds of any institution, however well managed, but to depend upon the Government alone. The ordinary societies, it was true, held out the prospect of an allowance during sickness, but that amount varied with the amount of the fund, and it often happened that the "box" was closed, when many urgent claims were made upon it. The present plan was a most valuable one, as it offered a reward for Providence and forethought. It was not even like a savings bank, where great losses might occur by the misconduct of the officers; for the intention of this committee was merely to facilitate the making of contracts between individuals and the Government; so that, except the Government itself should fail, these contracts would continue to exist in all their integrity.

Mr. Dines (foreman) felt that if the workman could insure the same advantages by weekly as they could by annual payments, it would be a great benefit to them. It would also be a great advantage if they could be confident that the money paid really went towards the annuity. He agreed with the committee that it was better not to meddle with the subject of sickness. The ability to withdraw the money at any time was a great advantage. He had spoken to many workmen, and most of them appeared in favour of a deferred annuity, rather than a sum at death. Besides the advantage of avoiding public-houses, he thought the present plan very desirable, as the widow of a member would be able to go at once to the office and receive the sum insured, without any trouble, and without the fear and danger of her claim being disputed, as was now sometimes the case.

Mr. Joseph Wood (foreman) called the attention of the meeting to the resolution before them. He quite agreed in the advantages of the plan, and its necessity in the vicissitudes to which a working man was always subject,—but the present object was the appointment of the committee. If appointed, he supposed that committee would be furnished with the resolutions and all other particulars, so that they might judge of the advantages to arise from the scheme. He had himself already insured 10s. a-week in sickness, 40l. at death, and 80l. to set him up in business in the event of any accident preventing his following his occupation as a mason; but he hardly thought that sufficient, and could make several other provisions, of which his family would reap the advantage. He wished to see in the new society the advantage of the safest possible security from such melancholy occurrences as those which had recently happened in savings banks. He was sure the whole meeting concurred in the advantages of provident savings; and at present he further believed that the chief feature in the plan proposed was the excellent guarantee it afforded for the safety of the security. The motives of such men as Mr. Baker, Mr. Cubitt, and others now present, could not be doubted, and he begged to tender them his most unbounded thanks. Another advantage would be the removal by this society of a great deal of the prejudice and ill-feeling that too often passed through their minds as working men.

Mr. Hardwick proposed a vote of thanks to Professor Cockerell. One of the foremen who had spoken, had said, he was glad of the opportunity of meeting so many architects, engineers, and builders, as were now assembled. He begged to assure him that the gratification was reciprocal. As it was the first time they had so met, he hoped it would not be the last, and he felt assured that the more frequently they met, the more would that good feeling and good understanding they were all so desirous to promote, be strengthened.

Mr. Sheriff Lawrence in seconding the motion, adverted to several of the points mentioned by preceding speakers; and dwelt particularly on the safety of the proposed security, the diminished cost of management as compared with existing societies; the benefits of the proposed office; and the freedom it would ensure from that temptation to spend money to which the working classes are now exposed at public houses. He hoped the foremen would discuss the question fully, raise their own difficulties, and be convinced, before they entered into the plan. They should not be led away by any men or by any fine speeches, against their own judgment.

The resolution was carried by acclamation.

The Chairman, in acknowledging the compliment, stated that the room they were in should be at the service of the foremen any evening they might appoint. He felt a twinge of conscience on the subject of the vote they had just passed, as he was bound to confess that he was not the originator of the scheme which the meeting had been kind enough to attribute to him. It had engaged the attention of the Builders' Society, through himself, seven years ago, but was then thought impracticable. When



Prince Albert, however, urged the importance of Government annuities, at the meeting of the Servants' Benevolent Society, he felt that a new light had been thrown upon the subject, and he then agitated it with a degree of success which now afforded him the greatest possible pleasure.

A Foreman suggested that, before the intended meeting, his brethren should consult with the different workmen, either in their shops or elsewhere, to ascertain, if possible, their opinions generally on the subject. It was agreed that the foremen should meet in the lower room, Exeter-hall, at half-past seven, on (this) Friday, Feb. 1, to discuss the subject and appoint their own committee.

#### REPEAL OF WINDOW AND BRICK DUTIES.

On Tuesday last a numerous deputation, representing various philanthropic, architectural, and sanitary societies of the metropolis, waited by appointment upon the Board of Health, and were received by Lord Ashley, Mr. Edwin Chadwick, and Dr. Southwood Smith; Lord Ashley in the chair.

Colonel Sykes explained the object of the deputation.

Mr. N. B. Ward (surgeon) showed, by examples, the effect of light both on plants and animals, and proved that a tax upon light could only have originated in the most profound ignorance of physical laws.

Dr. Sutherland, one of the medical inspectors of the Board present, confirmed the statement of Mr. Ward. With one only exception, recovery from disease might be hastened by simply removing a patient from a darkened room to one with abundance of light.

Mr. C. Gatiliff, secretary to the Society for Improving the Dwellings of the Working Classes, said that the annual expenses connected with an adequate supply of light, air, and water to the buildings they had erected greatly impeded and almost paralyzed the operations of the society. They were now paying upon their institution in St. Pancras the sum of 162l. 16s. in window duties, or 1 per cent. per ann. upon the original outlay; and a fourth of this sum arose out of the tax upon the windows of their water-closets. The average rental paid by the society's tenants was 5s. 6d. per week, and the window duty deducted from this 74d. per week. The occupiers of chambers in inns of court paid only 1s. 9d. per window, but a private house of 40 windows paid at the rate of 7s. for each.

Mr. W. E. Hickson observed that the revenue produced by the window duty, at the date of the last completed return (April 5, 1848), was 1,733,919l. He was of opinion that the abolition of the excise duties would better promote trade and industry than the entire exemption of house property from fiscal burdens; but if houses were to be taxed, it was surely possible to tax them in such a manner as not to offer a direct premium for the encouragement of dirt, darkness, and defective ventilation. The number of houses in Great Britain was estimated at 3,500,000,—but the window duty for the year ending the 5th of April, 1848, was only paid upon 481,111. Some houses were exempt, as farm houses; houses having less than eight windows not being liable to the duty, the landlords and tenants of all but houses of the first class very generally contrived to make seven windows of the largest kind allowed by law suffice, where there ought to be twelve, fifteen, or a greater number. An eighth window would make the house liable for 16s. 6d. per annum; a ninth would raise the tax to 21s. Under this system the sanitary recommendations of the Board of Health were daily neutralized by the practical teaching of the Chancellor of the Exchequer. The baneful tendency of the system had been recognized by Lord Althorp in 1834, and an Act was passed for an amendment (4 and 5 William 4, c. 54), but it was so loosely worded that no one could avail himself of its provisions. He (Mr. Hickson) had been compelled to serve his turn in the office of local assessor, and he now held in his hand his official warrant of instructions, wherein he was not only told that all openings, small or large, admitting light, were to be charged as windows, but that even if stopped up with lath and plaster, the charge was to be continued until the lath and plaster were removed and brick and mortar substituted. Especial mention was made of openings in all cellars, roofs, and passages as equally liable, and one-half page of the book was actually printed in red letters, the rest being in black, to call his particular attention to the fact that in the case of parties who had taken advantage of the Act of Lord Althorp, the houses were to be re-assessed to the window duty, and all additional windows surcharged upon the first change of occupiers. That such instructions should be issued after the publication of the evidence before the Health of Towns Commission, and especially after the late fearful visitation of cholera, was a scandal to the age. He could not believe that Sir Charles Wood would incur the responsibility of allowing such a baneful system to remain in operation another session; but as they

might possibly be told by him that he was not a sanitary commissioner, and that having his attention solely occupied with ways and means, he had no knowledge of matters connected with health and sickness, the present deputation had applied to the Board of Health, principally with the hope that all the facts connected with this case might, by the board, be officially placed before the Government.

Mr. Godwin, as a practising architect, could add something to the statement of evils caused by the tax on light, the obstacles it threw in the way of design, the premium it offered for the unhealthy arrangements in residences. As these evils, however, had been set forth and were admitted, he would confine himself to a few observations on another tax, the effects of which, in a sanitary and scientific point of view, were most disastrous, and but ill paid for by the small amount of revenue which it produced,—he meant the brick duty. It seemed a farce for a Government to express desire to increase the house accommodation of the poor, and to retain an impost which so greatly increased the cost of houses. The duty was but 5s. 10d. per thousand; but this, from obvious causes, had the effect of nearly doubling the price of bricks to the public, and it would be noted that in the houses of the poor, brickwork formed a much larger proportion of the whole than in the rich, and thus the tax pressed most unequally. Since the reign of George III. the price of brickwork had risen from 7l. 15s. per rod to (say) 12l., while the value of the materials used in making bricks had declined. The duty was levied as soon as the bricks were stacked, and before they were burnt. The manufacturer, therefore, had to pay upon all that were spoiled in the burning, and this led to the use of bricks of the most infamous quality. A majority of the houses now in process of erection in the suburbs of the metropolis were being built of bricks of this description, which, again, operated on the workmen, and with other causes had produced great decline of skill on the part of bricklayers. The removal of the duty would further cheapen the houses of the poor in this,—that experiments, now repressed by the dread of the exciseman, would be made, and improvements effected. It had been asserted that, by the use of hollow bricks, warmer and drier houses might be constructed, with much saving as compared with common brick, but the tax stood in the way of endeavours. The amount received from it was insignificant; the evils produced were large. In 1847, the total amount of the duty was but 673,000l., and the cost of collecting must be very great. Brick was a material on which art might be effectively employed, but no opportunity was afforded for this. By the removal of this duty all the various trades connected with building would be benefited. There was nothing to be said in its favour: long ago the Commissioners of Excise Inquiry had pronounced it one of the most objectionable of the excise duties, and he could scarcely doubt that a strong expression of opinion on the part of the Board of Health would lead to its immediate removal.

Mr. C. Fowler confirmed what had been said by the last speaker, and showed the result of the removal of excise interference by reference to the glass trade, and the advance which had been made in it since its enfranchisement.

Mr. Lindley, in answer to a question put by Mr. Chadwick, said that, with regard to bricks, there was no duty at Hamburg, and he could purchase for 15s. per 1,000 bricks of a similar quality, but of somewhat smaller size, to those for which he should be charged 35s. per 1,000 in this country. Bricks were so cheap in Hamburg, that a considerable export trade was carried on in them with all parts of the world, including our colonies. With regard to the absence of window duties in Germany, the difference was visible at a glance. No one there would be content with a single window to a room, where a greater number could be obtained. The entire facade of some of the houses between Hamburg and Vienna might be described as being of glass.

Lord Ashley said that the Board of Health had no power of interference with the measures which her Majesty's ministers might deem it necessary to support from considerations of revenue. With regard, however, to the sanitary evils to which the deputation had alluded, there could be no doubt whatever on the subject. They were all of one opinion. If a strong expression of that opinion on the part of the Board would serve the subject, it should certainly be given. "But," said his Lordship, "it will be for you, as representing the public, to follow up the statements you have made this day. You have been hitting the right nail on the head; you must now drive it home; and I can only further say, that I trust the utmost success will attend your exertions."

THE WHITTINGTON CLUB.—The report of the committee, just now published, shows that the number of members belonging to it at Christmas was 1666.

#### NOTES IN THE PROVINCES.

A NEW aisle has been added to Great Barford Church, a vestry built, and the body of the church repewed. The chancel also has been almost rebuilt. The aisle and chancel floors are laid in black and red tiles. The exterior is rubble and stone, pointed with black mortar. The cost of the whole was about 650l.

—A grand amendment of the New Forest abuses has been made. The inordinate rapacity of the "old day men" in consuming the profits of the forest and the wealth of the country to the handsome tune of 12s. a-week has been effectually checked, one would think, by a compulsory reduction to 6s.; and other salutary correctives of a like order have been administered to others of the great freebooters of the forest, such as the "tutmen," whose practices of "making up faggots" at 2s. 6d. and 3s. 6d. per 100 have all been completely put a stop to. "By this economy," says the *Salisbury Journal*, "66,000 acres of land are expected to pay their expenses." This is true financial reform! The Kidderminster Gas Company have resolved to reduce the price of their gas from 9s. to 8s. per 1,000 cubic feet, the reduction to date from Christmas last.—The Kidderminster Corn Trade Committee have accepted the Town Council's offer to erect a corn exchange, but desire a site with a street frontage.—The Exeter Water Company have liberally resolved to supply the baths and washhouses for the poor of that city gratuitously with water.—The Ecclesiastical Commissioners have given 1,000l. towards the erection of a parsonage-house for St. Mary's, Bilston.—A stained-glass window, presented to the new Unitarian Church in Hope-street, Liverpool, by Mr. T. Hibbert, of Everton, has lately been put up by Mr. J. A. Gibbs, of London. It consists of two principal lights, with three smaller openings above, and small side lights. The style is mediæval.—Seven new cotton factories, some of them on a very large scale, are to be shortly erected at Bolton.—A new cemetery project has been started at Bradford.

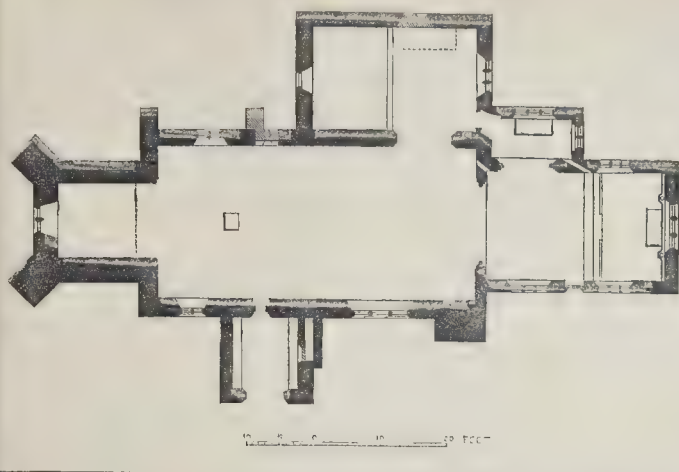
—Shares for the projected public hall at Bradford have been already taken up to the extent of 3,000l.—The Doncaster Gas Company are to reduce their price in July next to 4s. 2d. Thus, though our notes on gas be now much more scattered and intermixed than heretofore, when the battle had still to be fought by compact and orderly phalanxes of facts, the work of reduction and diffusion is every where in rapid and successful progress.

—A building plan has been started on the Duke of Devonshire's estate at Carlisle, for the erection of "handsome streets, crescents, terraces, plantations, two parks, a good central site for a church, and detached villas; the houses are all to stand alone, affording every convenience, and the advantage of ornamental planting. The design, if carried out, would make Carlisle one of the most beautiful towns in the kingdom."—Another Irish workhouse, the Kenmare, took fire on the 20th inst., but fortunately it was extinguished without loss of life. The house, though built for 500 only, and with a staff inadequate to the management of a greater number, is said to be crowded by no less than 1,800 poor wretches, besides 1,000 children under the same management, in two auxiliary buildings.

NIAGARA SUSPENSION BRIDGE.—Since our late brief notice of this structure, we have obtained a few more particulars as to its origin and construction, and as to the new project for replacing it by a railroad suspension. The first wire of the present structure was drawn across by means of a rope, hauled over by a cord, first laid across by a boy with the aid of a kite. The wire cable by which the engineer, Mr. Elett, first crossed in a car, consisted of 36 wires. Along the suspension structure, upheld by 14 of these, heavy teams now pass, five at one time occasionally, and droves of cattle. The railway structure which is to supersede it will require 16 cables of 6,000 wires each—all laid straight without twisting, but wound with small wire; and when completed, with its massive stone towers, it will sustain a weight of more than 6,000 tons beyond its own weight. For this and other improvements, contemplated or finished, the public will be indebted to the Hon. Charles B. Stuart.



## CLAPTON CHURCH, SOMERSETSHIRE.



## CLAPTON CHURCH, SOMERSETSHIRE.

THE prettily-situated parish church of Clapton, about 10 miles from Bristol, consists, as will be seen by the accompanying plan, of a nave, chancel, tower at the west end, south porch, and a north chapel, with a sacristy adjoining. The general style of the building is transition between the Early English and Decorated; but, like most churches, not without its share of Perpendicular additions and alterations.

The tower is of two stages, low and massive, and has buttresses, set diagonally with two set-offs, the lower part increasing in bulk to about twice the width and projection of the stage above. The west window is of two lights, with a hood mould, having the tooth ornament exceedingly large. The belfry has plain one-light windows; and the parapet is panelled. The tower arch is open, plain, recessed, chamfered, and supported by small engaged shafts, with heads forming capitals. There is no turret staircase.

The porch (the only entrance at present to the church) is quite plain, and has had a parvise; the steps leading thereto, with the two-light window and niche, still remain.

The nave has two square-headed perpendicular windows, south, and one square-headed perpendicular, and a decorated window over a blocked-up doorway, north. The doorway to the rood turret is also walled up. There are a number of open seats, low, massive, and of an early character, but "earthly pride and vain distinction" is here, as in most village churches, in the shape of the well-known square "pew." The dimensions of the open seats are as follows:—Width of pew from back to back, 3 feet 6½ inches; width of seat, 11 inches; height of ditto from floor of pew, 1 foot 4 inches; width of book board, 6 inches; height of top rail, 2 feet 4½ inches; width of end, 1 foot 8 inches. The ends are fixed in sleepers, 5 inches by 6 inches.

The chancel arch is plain, supported by small shafts, with caps of oak leaf foliage, but are so entirely coated with yellow wash as scarcely to be distinguished. In the north pier of the arch is a "hagioscope," or squint.

The chancel has lost the "dim religious light," which doubtless it once possessed, by the introduction of large square-headed perpendicular windows, two in the south and one in the north wall. The east window is also perpendicular, of three lights; a drop-arch and the details exceedingly poor. There has been a priest's door, but it has shared the same fate as the north doorway of the nave. It is evident, then, that this part of the church is not worthy of much notice, except it were for the piscina, and for its having still retained the ancient latton candlesticks: they are supported by pillars, attached to a plain perpendicular wooden reredos. The piscina is good; it has a drop-arch, supported by detached shafts, with

caps of stiff foliage and moulded bases, and it has a round hood mould, with terminations formed by a trefoil leaf. The floor of the chancel is raised about 4 inches above that of the nave.

The sacristy is entered from the "Holy-place" by a decorated arch (of the same character as the chancel arch), through the eastern jamb of which is another "hagioscope." The east window is early, of two lights, cusped in the soffit, with a circle in the head, enclosing a quatrefoil, in which are some remnants of painted glass. In the north wall is a square-headed perpendicular window: under it stands a stone altar, probably the original one of the chapel: the slab is 5 feet 10 inches by 3 feet 1 inch, by 6 inches thick; and the height 2 feet 8 inches. It is perfectly plain; not even any crosses visible. In the north corner of the west wall is a small, low, segmental pointed doorway, leading to the chapel, which communicates with the nave by a segmental pointed arch, doubly recessed, chamfered; the outer chamfers are carried down to within about 6 inches of the floor, while the other part of the arch springs from the plain wall at about 4 feet above. It has a hood mould formed by the roll moulding and a slight hollow, and is continued to the springing of the arch, where it is curled outwards, forming a termination peculiar to this style (Early Decorated). There is a small cinquefoil-headed piscina in the eastern pier of the arch on the north side. It has a quatrefoil basin, and the arch is supported by small engaged shafts. There is a three-light window in the east wall; the heads cusped, and the spandrels pierced under one arch: style, Transitional. The sill is lowered inside to within 3 feet of the floor. The lights are filled with stained glass; the quarrels are all similar in design, viz., a green leaf, or flower, with a pink centre, on a white ground. Each light has a border, 1½ inches wide, filled with different colours: the glass is in very fine preservation, not a particle of it being broken or missing. There has been a north window of two lights, ogee head, but it is now blocked up in order to make room for a large unsightly monument, reaching nearly to the roof, and bedaubed with a variety of colours. The west window is a plain lancet. The floor of the western part of the chapel is about 9 inches higher than the east end, and is composed chiefly of monumental slabs of late date. Both the east window of the chapel and sacristy, outside, have no hood mould, but merely the chamfer continued round each light, and as little stone as possible used for the dressings.

Whether the church has any wardens, I cannot say; there are no visible signs of such men; but, on the contrary, the dilapidated state of portions of the building, the filthy condition in which it is kept, and the quantity of dirt every where visible, even on the holy table itself, show that there are none in the true sense of the word.

If our Catholic forefathers could but arise and see the condition of many of our still beautiful churches, would they not exclaim, in the words of the Psalmist,—“Thine adversaries roar in the midst of thy congregations, and set up their banners for tokens. He that hewed timber afore out of the thick trees was known to bring it to an excellent work. But now they break down all the carved work thereof with axes and hammers. They have set fire upon thy holy places, and have defiled the dwelling-place of thy name, even unto the ground.”

FILIUS ECCLESIAE.

## ORIGINAL FORMS IN ARCHITECTURE.

“I was dumb with silence, I held my peace, even from good, but it was pain and grief to me.”

OUR spirit is once and again moved within us, by Mr. Phipson's remarks upon modern architectural practice, to make a suggestion which has hitherto been kept back by the anticipation of its probable difficulties; but THE BUILDER we know countenances original thought, and there is, therefore, a ray of hope that the stimulating proverb, “where there's a will there's a way,” may yet receive its fulfilment in this as in other matters.

The proposition is this, that a column of THE BUILDER be opened for original forms and ideas in architecture. This heading must be further explained by remarking that a house is not an original idea, but its parts and details of its parts may be: a church is not an original idea, but its parts and details of its parts may be. Such original details, be they in Grecian, Roman, English, or other architecture, we would have collected and encouraged in such a work as THE BUILDER: proviso—they being good, which of course would be decided by yourself. To save expense and trouble, the drawings should be in lines, with or without letter-press descriptions, at the option of yourself to admit them, and drawings not accepted should not be returned.

J. W. H.

## BRISTOL ATHENÆUM SOIRÉE.

THE supporters of this institution gave a *soirée* on Wednesday week, at which the mayor of Bristol presided, and a large assemblage of the *élite* of the city were addressed by Lord Teignmouth, Mr. Miles, M.P., Dr. Symonds, and others, and resolutions were unanimously passed to the effect that, “It is very desirable that time and opportunity should be afforded to persons engaged in business for intellectual and moral improvement.” That “Although light and desultory reading may only amuse, and although superficial knowledge may sometimes encourage natural conceit and presumption, yet these abuses need not deter us from endeavouring to dispel ignorance and error, by diffusing useful information and inculcating truth,” &c. In proposing the first resolution, Lord Teignmouth remarked that proper leisure could not be said to *interfere* with either business or duty. What is more true, said his lordship, than that rest is necessary to our nature?—a sentiment almost hallowed and consecrated by a memorable sentence of one of our greatest philosophers, Lord Bacon,—a sentiment which, though it might appear a simple truism, is a most important truth, and one which has been sadly overlooked and forgotten in this restless, turbulent, and self-destroying age, a truth which has not only received the signet of the philosophers but has been stamped with divine sanction. “The pause reinforce the onset;” and that man who has “rest from his labours” is able to see the bearings of his business and position, and the relation of his various duties, and is thus infinitely better able to discharge these duties than if ground down in perpetual and servile drudgery.

I conceive, added his lordship, that the humblest mechanic, as well as the person engaged in the most extensive concerns of business in this city or elsewhere, has a three-fold obligation; he is bound to his employer, to his country, and to his God. And it is my firm belief that the Athenæum and similar institutions, when under proper regulations, do not interfere with any of the duties thus devolving on any individual, but really enable him to discharge them better.



Mr. Miles, in seconding the same resolution, said that during a sojourn in America he had found in nearly every town he visited an institution similar to this, though not known exactly by the name of an Athenæum. He had heard from all classes of the people in that country, of the great good diffused by such institutions.

Would that I could tell, said Dr. Symonds, in the course of an eloquent address, in moving another resolution, how good a thing is knowledge, in itself and for itself! I should have to show, that as real knowledge consists in seeing things in their true connections, order, and mutual adaptation, to gain it is to approach, though at an infinite distance, towards the Supreme Mind that has so ordered all things. I should have to tell, how there is an original inherent affinity between knowledge and truth and goodness; that the tendency of true knowledge is ever upwards; that wisdom came down from above not to make us content with remaining below, but to raise us to a higher sphere—for she descended that we might ascend with her. All true knowledge culminates, and in culminating it must point upwards. Though its base be as broad, and its foundations as deep, as the earth, its apex cannot but point towards Heaven. I should have to show, that the pilgrim of knowledge must be like the hero of one of the popular poems of the day:—

"A youth who bore through snow and ice  
A banner with the strange device,  
'Excelsior!'"

Undeterred by dangers and difficulties, undeterred by the allurements of ease and pleasure, his watchword must be "excelsior,"—"higher, still higher."

#### PATENT RIGHT.

**Enrolment of Specifications.**—It must be recollected that now, by the 11 and 12 Vict., c. 94, every specification, disclaimer, and memorandum of alteration, must be enrolled at the enrolment office. Instead of having three receiving offices for such documents, there is now but one. It is now a matter of certainty, for any person desirous of inspecting a specification, when he has ascertained the date of a patent, to determine at once where it is to be found, without the inconvenience of hunting at different offices, and paying a fee to each, in two cases often for a useless search.

**Specifications, Copies, and Certificates of Enrolment made evidence.**—By the 15th section of the above statute it is also enacted, that to facilitate the proof of the due enrolment of specifications, &c., and also copies of the enrolment thereof, a seal or stamp, to be approved by the Master of the Rolls, shall be provided and kept at the enrolment office, to be called the seal of the enrolment office in Chancery; and all courts and other tribunals, judges, justices, officers, and other persons whomsoever, shall take notice of the said seal, and shall receive in evidence every instrument and writing purporting to be sealed or stamped therewith, without proof that the same has been so sealed or stamped. Section 16 enacts, that a certificate of enrolment shall be endorsed upon every specification, &c., sealed with the said seal; and every certificate so stamped or sealed shall be admitted and received in evidence by all courts, &c., without further proof, and as sufficient *prima facie* evidence that the document or instrument therein mentioned was duly enrolled, as mentioned in the said certificate.

**FIRE IN ANOTHER NOBLEMAN'S MANSION.**—Buchanan House, Lochlomond, Stirlingshire, the Scottish seat of the Duke of Montrose, has been nearly destroyed by the overheating of a chimney flue communicating with an oaken window lintel. The original mansion house, with a frontage of 135 feet, and one of the two modern wings of 47 feet frontage, were totally ruined. No fire-engine was kept on the premises, and the water was frozen in the pipes. Most of the valuables were saved, and the whole was insured for 20,000l. in the Phoenix Life Office, for which Mr. Herbertson, architect, and others, have already acted, in the inspection of the remains.

#### Miscellaneous.

**PROJECTED WORKS.**—Advertisements have been issued for tenders, by 8th inst., for the completion of eight unfinished houses in Peckham; by a date not specified, for the various artificers' works to be performed in the erection of seven houses at Portishead, near Bristol; by 21st, for the execution of the alterations and additions at Quatt School (Cleobury Mortimer), and fitting up warming apparatus for same; by a date not specified, for completion of a pair of semi-detached villas at Barnes; by 5th, for the supply of a quantity of cast-iron pipes, 12 and 8 inch diameter, at Salford; by 7th, for erecting an extensive range of manufacturing buildings at Carlisle; by 6th, for sinking a gasholder pit at Hulme; by 1st March, for supplying the Birmingham General Cemetery with gravestones; and by 8th inst., for the erection of a galvanized corrugated iron structure for the Royal Dublin Society's exhibition in July.

**THE VANBRUGH CLUB.**—On Wednesday evening last a number of young architects and engineers (some of whom have favourably distinguished themselves in their professions), donned "sock or buskin," and on the stage of Miss Kelly's theatre, in Dean-street, Soho, represented "The Rent Day," "Not a Bad Judge," and "John Dobbs." "Orders" for the boxes, for one night only, superseded in their affections the Doric and Ionic; and they sadly jumbled styles; for though all were Early English, they were both decorated and perpendicular. Some of them proved that they would have "drawn houses" even if they had been brought up actors instead of architects. What we know of the good sense of several of the parties leads us to think there is no occasion for us to whisper—"moderation." The name they have adopted is a happy one—that of the architect dramatist, and dramatic architect, Vanbrugh. The theatre has been recently decorated, with good discretion, under the direction of Mr. W. W. Deane and Mr. S. J. Nicholl.

**METROPOLITAN SEWERS COMMISSION.**—A meeting was held on 25th ult., at which Sir H. de la Beche, who presided, moved a resolution passed to the effect that Mr. Foster prepare estimates of a plan by Captain Vetch (one of the commissioners themselves) for the drainage of the Southwark side of the Thames. The resolution particularized the scheme referred to Mr. Foster as having "reference to a covered channel for general outfall, between Vauxhall and Deptford, or thereabouts, by which the present distance by the river will be shortened and a better outfall secured; to the continuation of the channel to and beyond Woolwich; and to the removal of the whole sewage of such area from that part of the Thames; due attention having been had and being paid to those plans sent in to this commission, which relate to the same area." Mr. Rendell supported the resolution, and said that though they might reform the sewage to a great extent, they might as well revolutionize the country as the sewage of London, which had grown with its growth, and any revolution in which would be a great injury to the sanitary state of the metropolis in place of a benefit. The plans sent in by the competing engineers, he thought, would form valuable adjuncts to this scheme or that, but he regarded them more as ideas or suggestions than as practical working plans. Messrs. Hardwick, Hawes, Laws, and Captains Dawson, Harness, and Vetch were also present, while the resolution was under consideration.

**THE ASSYRIAN ANTIQUITIES.**—At the Royal Asiatic Society, Major Rawlinson has recently communicated some important papers on the monuments found on the site of Nineveh. The chronological question was briefly noticed, and it was stated, that although nothing positive had been yet elicited from the inscriptions, as to the origin or duration of the Assyrian monarchy, there were still good grounds for assigning the earlier Nimrud sculptures to the twelfth, or perhaps the thirteenth century before the Christian era!

**PIETRO BIANCHI.**—The Athenæum reports the death of the eminent Italian architect, Pietro Bianchi, the artist of the Church of St. Francisco di Paolo. He was a member of the Academies of Fine Arts at Florence, Bologna, Modena, Venice, Stockholm, and Copenhagen, and a Knight of several orders.

**INSTITUTION OF MECHANICAL ENGINEERS.**—The third annual general meeting of this institution was held at Queen's Hotel, Birmingham, on Wednesday week, Mr. I. E. McConnell in the chair, when the annual report was read, which showed that there were now 201 members. A committee was appointed to consider a proposal to do honour to their deceased president, Mr. George Stephenson. Office bearers, including Mr. R. Stephenson as president, and Messrs. Beyer and McConnell as vice-presidents, were then appointed, and papers, on "Railway Axles," by Mr. McConnell, on "Railway Springs," by Mr. W. A. Adams, and on "The Condensation of Steam in Engines," by Mr. W. Smith, of Dudley, were afterwards read and commented on.

**CENTRAL SCHOOL OF DESIGN.**—The recent exhibition of the students' works deserves a more lengthened notice than we gave it. We have an article in type, but are forced by pressure of matter to postpone it.

**PAGAN v. POINTED.**—Sir: I need not inform you that there is at this present moment in England a sect who affect to embody the spirit of Christianity in certain conventional forms and symbols. A member of this fraternity lately painted a representation of the deluge,—he introduced the ark of Noah,—he also depicted the heavenly arc in its natural and beautiful form; considering however that the latter partook of the Roman form of arch, he dubbed it "Pagan," and made the rainbow pointed, determined, as he said, to impart a true Christian character to his work. The picture is not sold.—A. W. H.

**TYNEMOUTH PRIORY RUINS.**—The Newcastle Society of Antiquaries are preparing a memorial to the Treasury, praying for the removal of the powder magazine from the Lady's chapel, and of other military adjuncts, blockading of windows, &c., from the priory ruins, and that their lordships will aid in the future preservation of these interesting and venerable relics from desecration or defacement.

**CIRCULAR PLANE OF PROJECTION.**—In my early career in perspective, which I have practised for many years, I found the limit of 30 degrees inconvenient, and at the time designs were making for the Houses of Parliament, wishing to show to advantage an octagonal interior, gave more thought than I before had done to a *circular plane of projection*, and have since that time used it for such forms, but find by experience that it is very limited in its application, and particularly to rectangular building or connected forms, while to disconnected forms it can be applied with results more satisfactory.—JOHN CROFT.

**STRAY IDEAS AND SUGGESTIONS AS TO METROPOLITAN SITES.**—Burlington House and gardens, Piccadilly—a museum and hall of the fine arts: the bottom of Portland-place—a colossal monument on the scale of that at London Bridge, the pedestal adorned with military trophies; one of the finest sites in Europe for such an object: the statue of the Duke of Kent—from the above-named spot, to a more confined area, where its elegant proportions would be seen to greater advantage—say the esplanade in front of Buckingham Palace.—FOOTPAD.

**WIDE ESTIMATING.**—Tenders delivered for finishing two houses in Holloway, for the St. Leonard Building Society; Mr. Tress, architect, who furnished the quantities:—

Woods	£398 0
Darby	390 0
Pillbeam	380 0
Fowler	375 0
Burton	371 0
Sliefeld	345 0
Ashton	338 10
Raskin	328 0
Wm. Higgs	327 0
Stiles	325 0
Loynes	300 0
Fawcett	295 0
Hill and Son	290 0
Honeywell	289 0
Slade	281 0
Hall	266 0
Metcalf (accepted)	235 0

#### MEETINGS OF SCIENTIFIC BODIES

To be held during the ensuing week.

MONDAY, Feb. 4.—Institute of Architects, 8 p.m.  
TUESDAY, 5.—Institution of Civil Engineers, 8 p.m.  
WEDNESDAY, 6.—Society of Arts, 8 p.m.  
THURSDAY, 7.—Royal Society, 8½ p.m.; Society of Antiquaries, 8 p.m.; Royal Academy, 8 p.m.











# The Builder.

No. CCCLXVI.

SATURDAY, FEBRUARY 9, 1850.

**M**R. EWART asked in the House of Commons last Monday evening, to be told in what state of advancement the new House was, and how soon it was likely that it would be ready for the reception of members?—(Members tittered.)—Mr. Greene said it would be difficult to answer the first portion of his honourable friend's question, but if he wished to know whether the new House of Commons could be completed for the occupation of the members during the present session, he had no hesitation in saying that it would be possible to finish the chamber itself for the reception of members during the present session; but he apprehended it would be impossible to use it comfortably without the refreshment rooms, libraries, public and private approaches, and other adjuncts to the House, which were necessary to render it convenient. (Laughter.) He had written to Mr. Barry on the subject, and was informed by that gentleman in reply, speaking of these portions of the building, that they were now so far advanced towards completion, that if a sufficient vote were taken shortly (great laughter), it would be ready by the next session of Parliament. (Renewed laughter.)

It is much to be regretted that some member properly informed on this subject, if there be such, had not told the House and the country how the matter really does stand, and removed the impression which generally exists that the delay is to be attributed to the architect or the builder. Mr. Greene's reply, instead of removing, will strengthen the erroneous belief. In the Christmas burlesques of previous years, as we mentioned at the time, Barry was made the natural rhyme for "tarry." In the amusing piece of absurdity, called "Frankenstein," now current at the Adelphi Theatre, it is said, of one of the characters, that some of his designs he is—

"—Long in getting through with,  
Like certain Houses Barry has to do with;"

and so on all over the country; while, in truth, the delay rests wholly with the Commons themselves.

We walked from one end of the enormous building to the other, a few days ago, and were grieved by the air of desolation which everywhere prevailed.—had we known nothing of the truth, we should have fancied that the builder had gone wrong, and that a messenger from the court of bankruptcy was in possession,—a result, by the way, which would very probably have been brought about, as we will show presently,—if the builder had been a man of less substance than Mr. Grissell. Few workmen were to be seen except in one or two quarters; and these moved with that listlessness which follows want of energy in the direction. To a very large portion of the building nothing whatever has been done for four years:—there it stands in carcass just as it did four years ago! The first contract, commenced ten years since, and which was to have been completed in three years, is positively not yet wound up. In the Commons' lobby the

scaffolding is standing exactly as it was eighteen months ago, and there are no orders yet given for building it. In the Commons' library there had not been a man at work for two or three years till last week, when three or four joiners were sent in to—take down some pedestal presses which had been put up. Here and there you may see other pairs of men amusing themselves pleasantly by altering a panel or putting up a moulding,—evidently set to it to prevent them from suffering from ennui, and avoid the necessity of discharging them altogether. Our readers who understand these things will laugh when we tell them, that the whole number of joiners now employed on the building is thirty;—four flies to eat up an elephant: they perhaps may get through the job if they live long enough, but it will be a weary while first.

The House of Commons, of which we gave a view a few weeks ago, has been standing still for six months.

The Commons' Refreshment Room, again, is exactly as it was one year and a half ago, and as it will be one year and a half hence, unless the Commons themselves permit it to proceed. Members who produced the "tittering" and "much laughter" of Monday night, and shrugged their shoulders to express their belief that under the present direction they never would get into their new quarters, surely cannot know the real facts of the case. They cannot be aware that the fault is their own, and solely their own; they can scarcely appreciate the injury they are doing the contractor, and the loss which will ultimately fall on the public.

Not very long ago the Government spent at least 20,000*l.* in the erection of workshops at Thames-bank, with provision of gas, water, and costly machinery, to admit of greater rapidity in the progress of the works: the machinery is silent, the shops empty, the expenditure lying waste, and here the contractor has no less than fourteen thousand pounds' worth of materials, timber and deals, wainscot, &c., purchased through the necessity of providing seasoned stuff for what was anticipated to go on, and which have been lying there and spoiling for four years. At this time, perhaps, he could buy them 20 per cent cheaper than he did then, to say nothing of the interest of money on the amount laid by. Quarries were leased, horses and plant bought, and other necessary steps taken to carry on the work as it ought to be done. The loss caused by the delay may be estimated. His establishment is of course partly broken up, and what is greatly to be deplored, a large number of skilled workmen, educated to what was required, are dispersed north and south.

What the state of the accounts are we will not inquire,—the contract is for prices only, and reasoning from experience in other cases, we will venture to assert that whether Government owe the contractor thirty, forty, fifty, or sixty thousand pounds, they are profoundly ignorant,—perhaps he is so himself: with a disagreement between the Government and the architect, as to who should pay for measuring the work, and the general apathy necessarily induced by the proceedings, this is almost certain to be the case.

Looked at every way, the results of the course which has been pursued are seen to be bad, and we would very seriously urge on the attention of Government, the importance of doing differently in future and proceeding vigorously with this great work: employment is wanted, loss is caused by

delay,—nothing can be gained by it; enormous rents are being paid which might be saved, and the dignity of the country is in a degree compromised. Let a fund be raised for the purpose, to be paid off by annual grants for, say, twenty years, or provide the money in any other way, and there will then be little further opportunity, we venture to assert, for "much laughter," when the progress of the new Houses is referred to.\*

We will take this opportunity to contradict a statement, commented on by some of our contemporaries, that the roof of Westminster Hall is to be raised: there is no truth in it.

## CLASSIC AND GOTHIC.—VIGNOLA. ROYAL INSTITUTE OF ARCHITECTS.

AN ordinary meeting of the Institute was held on the 4th, Mr. S. Smirke, V.P., in the chair, when Messrs. C. H. Gabriel, J. Norton, and F. W. Porter, were elected associates.

Mr. Scoles, hon. secretary, read a letter from Mr. Fuller, of Bristol, stating, with reference to the Educational Institute at Llandoverly, that having contracted to execute the works under circumstances which he thought justified the step,† and finding it was contrary to the laws of the Institute, he forwarded his resignation as a member.

The Chairman said that so decided an infraction of their laws having been committed, there could be no question about the necessity of accepting the resignation.

The report and recommendations of the council as to the appropriation of the Royal gold medal, and with regard to the essay and designs received in competition for the silver medal of the Institute, and the Soane medal, were read. With respect to the gold medal, the council recommended that it be presented to Mr. Barry, for the edifices erected by him; and the question being put to the meeting, it was unanimously confirmed.

As to the drawings submitted for the Soane medal, and the essays for the Institute medal, the council advised that no award should be made. For the Institute medal only one essay had been received (subject, "On the Construction of Floors, Fire-proof, or otherwise"). For the Soane Medallion (subject, "A Design for a Parish Church,—style, Roman or Italian"), six designs were received, but in their opinion there was but one which approached the standard fixed, and this, besides departing from the printed instructions, inasmuch as the scale was smaller than that prescribed, and the drawings were coloured instead of being tinted in sepia, was open to many objections. These the report set forth with much severity.

The confirmation of the report was postponed, to enable the members to examine the drawings, &c.‡

Mr. Samuel Angell then read a very admirable paper, which we shall probably give *in extenso*, on "The Life, Genius, and Works of Giacomo Barozzi da Vignola," illustrated by plans and views of his works. After sketching the life of Vignola, the writer reviewed his works, and concluded with urgent advice to the rising members of the profession to study Italian architecture, which had been greatly neglected in favour of pointed architecture.

\* Relative to the level of the new Houses, and the disastrous high tide of Tuesday last week, by which a very large amount of property was destroyed, a correspondent says, "the water was many inches above the plinth, or terrace, of the new buildings at Westminster, and was about a quarter of a foot higher than that of December, 1845;" and he directs attention to two articles, written by himself, in our Volume for 1847 (*V.*), p. 11 and p. 83, on the "Progressive Rise of the River."

† See THE BUILDER, pp. 32 and 41.

‡ We have received several letters objecting to the severe requirements of the council in respect of the medals. We give a portion of one:—"May I venture to intrude a few lines relative to the report of the Council of the Institute on the designs for the silver medal, read last Monday evening? Never since I can remember has the Institute, as represented by its council, given the medal graciously,—often, as in the present case, it has not given it at all; but whenever it has awarded it, it has always done so under a kind of protest that the successful candidate did not fully deserve it. Now, Sir, the council complain that there is not the same competition for, or the same eagerness to obtain their medals, as is manifested by the students of the Royal Academy and other places. I would submit, is not the cause to be found in their own conduct? I have known several persons who would certainly have competed had they not been deterred by the treatment they saw others receive. I am quite unconnected with any of the competition designs, and inclose my card.—E."



Mr. Tite, in complimenting Mr. Angell on his paper, said Vignola's life presented several interesting phases. In early life he was employed as a plaster modeller; then he was an engineer; and he would remark, in parenthesis, to a distinguished friend of his opposite (Mr. I. K. Brunel), that there was a time when architects were engineers and engineers were architects. Then we find him as a diplomatist, employed to settle the boundary of the states. It ought not to be without its lesson, that he died poor, caring more for a noble reputation than great wealth. He quite agreed with the lecturer in thinking that classical architecture was unduly neglected in England. He ventured to say, that the art of Vignola would build a church better adapted to our wants than mediæval art, beautiful as it was. However, he would say, let one be done but the other not undone. He sincerely hoped this paper would have the effect of reviving a feeling for the study of classical architecture.

Mr. Hardwick said Vignola had been with him a favourite study. Of the beauties of the circular court at Caprarola—Vignola's chief work—he had the most lively recollection. He fully agreed with those who urged the importance of bringing back the attention of students to the architecture of Italy. For Gothic architecture he had the greatest admiration, but in the pursuit of it we had neglected the former.

The Chairman also fully concurred in this remark. He objected to the expression, "The Italian style." The style of Italy was in truth that of the Greeks,—it was only a species of a genus, and should not, he thought, be put forth as a distinct style.

Mr. Cockerell rejoiced to be present at this digging out of an old master, and hoped the example of bringing together on one wall, as he believed had never been done before, all the works of Vignola, would be followed with other masters, and that we should thus trace the art through Bramante, Giulio Romano, Vignola, Palladio, &c. If we had the works of these and other lights put before us, we should discover the motives of progress, and find reason to wonder at its immensity. Vignola was successful as an architect through having been a painter and teacher of perspective, prompted by poverty, that great stimulator. By what a master achieves of new we must estimate him. Amongst Vignola's improvements he had amalgamated the trabecated and arch systems as no other artist had done before him. The Romans *pasted* the trabecation on their arched amphitheatres: Vignola produced it structurally. He obtained the appearance of magnitude by the use of small openings: at Caprarola the magnitude was more apparent than real. There was structural good sense in all he did: he seldom put balustrades on his buildings to hide the roof. Amongst the architects of France, Vignola was their saint, as Palladio was once ours. Mr. Cockerell then touched very nicely a subject on which he has often dwelt in his lectures,—namely, the advantage of poetical feeling to architects. When the poet comes in aid, he gives the architect wings, and enables him to get above the earth, to which he is bound by "horrid details."\*

#### PICTURES AT THE BRITISH INSTITUTION.

We took our accustomed stroll through the rooms of this exhibition, wondering at its continued mediocre character and the apparent questionable judgment of its arrangement. A casual observer is surprised at the few figure pictures to be found in the annual collections here; but to those who have heard of the repeated slights offered to this the most important branch of art, and the consequent determination on the part of painters never again to lay themselves open to similar annoyances, it is not a source of astonishment. To what is this attributable? many have inquired. Examine the list of Directors, and it can be easily concluded *not* from ignorance. Laxity of interest in art general, and too much interest in art particular, must be, we think, the "Scylla and Charybdis."

\* Mr. Cockerell delivered his concluding lecture at the Royal Acad. on the 7th inst. We are in arrears with our reports, but shall not omit them.

The collection this season is neither a jot better nor worse on the whole than that of the last: there are pictures to admire whilst examining, but not one sufficiently extraordinary to impress a lasting recollection, or even to induce a second visit.

Amongst the most attractive are two small pictures by Linnell (133), "Opening the Gate," and (212) "The Purchased Flock," exhibiting this master's usual richness of subdued colour, and intimate knowledge of nature in her humblest guise: the latter and smaller of the two is a most valuable picture, both as a work of art and as an example of the style (not manner) of the painter.

(198) "A Golden Moment" is an exquisite landscape, illumined by a veritable glowing ray of one of those radiant sunsets Mr. Danby, A.R.A., so delights to bask in; so successful is he ever, that one forgets the existence of Rowney or Roberson, and easily imagines it a *bonâ fide* gorgeous vision of "nature going to sleep."

One of the few good figure pictures is contributed by J. C. Hook (317), "The Departure of the Chevalier Bayard from Brescia." This is an interesting production in the adopted style of the artist, a little like Eastlake, a little like Herbert. A little firmer drawing throughout, and especially about the legs of both male figures would enhance materially the value of this work of art.

(52) "The Post-office," F. Goodall, evidences the most unshrinking perseverance and care both in study and production,—a praiseworthy determination to leave nothing undone; but remembering such pictures as the "Brittany Marriage Fête," "The Widow's Benefit," and other earlier pictures, this can hardly be considered an improvement. The intention or story of the picture exhibits a keen perception both for pathos and humour, but the *dramatis personæ* want individuality; this is particularly obvious in the old heads, all apparently painted from one model. It would, on the whole, be more attractive as an engraving; a certain artificial quality of colour that pervades the picture proving detrimental to it. (148) "A View of Angers," E. A. Goodall, is a very agreeable picture, but the effect of this is likewise deteriorated by the same conventional scale of colour.

(30) "Astronomy," a singularly charming study of feminine beauty, has afforded Mr. J. Sant an opportunity of displaying very extraordinary power over material, as well as inherent art-attributes. The colour, and manner in which it is wrought, are truly wonderful.

(96) "The Watchful Shepherd," by R. Redgrave, A.R.A., is full of beauty.

(16) A large edition of the never-dying Cromwell and his immortal secretary, by F. Newenham, takes up more space than we should be willing to afford it, broadly and well painted as it is.

(18) "The Miller's Home," (71) "Noon; the Stream in the Valley," and (256), "Morning—the Stream in the Hills"—three beautiful repetitions of Creswick, A.R.A., are as welcome as ever. His productions, in spite of similarity, never tire.

(40) "The Regretted Companion," R. Ansdell, while it shows this artist's well-known skill in the representation of animals, evinces a decided improvement in flesh painting. (123) "Southdowns," a joint picture by this artist and Creswick, as a piece of handwork, is perfect.

(64) "The Plays of Shakespeare," J. Gilbert,—a congregation of the great bard's chief characters, is an excellent and quaint notion unequally executed: it is capriciously composed and situated, but wanting, in the most prominent figures, individual delineation. The passages embracing the "Taming of the Shrew," "Romeo and Juliet," "Othello," "Macbeth," and the more subservient incidents, may be highly commended; at the same time, *Ophelia* and *Hamlet*, with those forming the foreground, are open to equivocal criticism.

Mr. E. W. Cooke exhibits some good specimens of his skill. (45) "Dutch Pilots warping their Craft out of Harbour," (369) "The Villa Borghese," &c.

(382) "Hawkers of Relics, exhibiting them to the Sick Daughter of a Peasant," by James Godwin, is the first exhibited large work of a clever young artist. If we had less personal interest in the painter we would say more of his picture.

(296) "The Environs of an Ancient Garden," C. Branwhite.—Such a picture as this deserves the line, surely; replete as it is with poetical feeling, and characterized by a solidity and richness of colour not to be surpassed, there is also a wholesome tendency in this to combine nature with fancy, seldom to be found in imaginative subjects. (245) "The Frozen Lock," and (315) "The Frozen Mill," are marvellously true.

There are some capital transcripts from nature by the Williams', and a bit (361) "At Undercliffe, Isle of Wight," by Percy, a perfect little production.

The pleasing execution of Jutsum is successfully displayed in (57) "Evening; coming Home to the Farm;" an excellent specimen. (297) "Kirby Lonsdale and the Valley of the Lune," and (314) "A Westmoreland Trout Stream," are two artistic adaptations.

(375) "A Street in Bologna, looking towards the Grand Square," capital in colour and execution.

(407) "Poachers," W. Underhill.—A very powerfully painted picture, full of quality and tone; the expression of boyish determination and a certain knowledge of doing wrong, reckless of the consequences, is portrayed faithfully.

(388) "The First Impression," H. C. Selous,—representing Guttenberg showing to his wife his first experiment in printing from moveable types, supposed to have been the Bible printed in 1450-60, is very carefully studied; the accessories are painted with skill and disposed with taste, but the figures want vitality: the nonchalance of the lady is a mistake.

(401) "The Evening Sun upon a Mountain, called Tryfan, in North Wales," is a curious and clever depiction, by T. Danby.

(106) "In the Lagunes of Venice," (182) "Ruins of the Library in Hadrian's Villa," and (283) "Borgo Castello, Calabria Ultra," are three very forcible and brilliant compositions, by W. Linton: it is to be regretted that the clouds in the latter are so overwhelmingly heavy,—they prejudice a fine painting.

(300) "A Bacchante," C. Brocky.—A reclining figure, cleverly painted, but marred by the ill-judged back-ground. (129) "Sympathy," two of Mr. Stone's young ladies, in whom he is wont to centre all the virtues, passions, affections, &c., of humanity.

(138) "The Novice," and (434) "A Subject from an Old Song," wherein everything is sacrificed to fine execution and colour.

(140) "Dover," J. Holland.—The largest but least interesting of this artist's contributions, (211) "Piazzetta di St. Marco," brilliant in colour, and (426) "Walmer Castle," ably sustain his reputation.

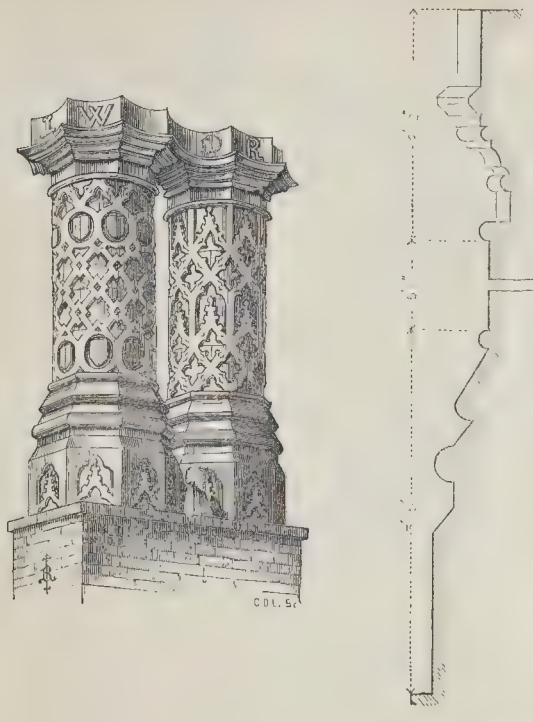
(248) "Interior of the Royal Chapel, Hampton Court,"—One of those precise delineations for which J. D. Wingfield is justly famous. (56) "A Peep in the Palace of William III.," is a smaller but no less clever specimen.

(2) "Medora," and (156) "The Triumph of Venus," W. Fisher, deserve attention and great commendation, although not equal to some previous works. (89) "Glory," J. W. Glass, (108) "The Road round the Park," and (246) "A Village Inn," by E. J. Cobbett, (232) "Luna," J. G. Naish, (282) "The Rival's Wedding," H. M. Anthony, (376) "Sleep and Death conveying the body of Sarpedon," by J. Wood, (451) "Farm House and Mill at Isques, near Boulogne," G. Stanfield, (456) "Varney's Reception at Cumnor-place," from "Kenilworth," A. T. Derby, and (472) "Edinburgh," by Bentley, are amongst the other noticeable pictures.

THE CHARGE TO SEE ST. PAUL'S CATHEDRAL.—Good Mr. Editor, pray say something about the exorbitant charge made to go over that wonderful work of art, St. Paul's Cathedral, which ought to be thrown open to all the world. What must a foreigner think when he travels to it, as of course every one would, to find that it would cost him 4s. 4d. to go over it? A father and mother wish to take their three children, but they find it will cost them more than a guinea. Really, it is time some change were made. Let there be a small charge to defray the expenses, and keep it quiet and orderly; but 4s. 4d. is positively too bad,—H.



## BRICK CHIMNEYS, DENVER, NORFOLK.



## BRICK CHIMNEYS, DENVER, NORFOLK.

The ornamental brick chimneys represented above, from a drawing by Mr. Brandon, are from an old building called East-hall Manor House, Denver, Norfolk. They are a good specimen of the brickwork of the Tudor period. A section of the mouldings is added.

## THE WORKS OF THE STUDENTS IN THE CENTRAL SCHOOL OF DESIGN.

OUR readers are aware of the interest with which we have always watched the Government School of Design; indeed, we believe that we were the first to devote space to the consideration of those controverted points which for so long a time retarded its development, and threatened its destruction.

Convinced as we are of the immense importance, in every point of view, of such institutions to a commercial nation like ours, especially when efforts having no previous parallel are being made, not merely by individuals, but by the strength of kingdoms, either to maintain their present supremacy in matters of taste, or to equal or surpass us in those qualities of manufacture in which we have hitherto maintained a superiority, our schools of design may well claim more than ordinary attention, and if promising to be successful, more than ordinary encouragement and support.

In proportion to our long-felt interest in the success of the school, and our conviction of its national importance, is the pleasure with which we hail its recent progress, and the advance towards success in fulfilling its proposed object, which the recent exhibition of the works of the students executed during the past session evinces. This exhibition, which took place in rooms belonging to the University of London in Somerset House, consisted of the whole works of the students executed during the last year, including, besides the 1,239 works in the catalogue, 5,108 drawings of ornament from the flat and round, geometrical and perspective drawings, and outlines of the figure from the flat, making a total of 6,347 exhibited works—a much truer test of the progress of the

school than any exhibition of a selected few could possibly be, as we have an opportunity of examining not only the result, but the solidity and propriety of each step in attaining it.

The recent exhibition presented two features in what may be called its elementary department, which are of the utmost importance, and which are evidently assiduously cultivated—the attaining a complete mastery of outline in every department, and the extensive practice of study from floral nature. The many outlines from the ornament of the doors of the Madeleine, the size of the original, fully test the efficiency of the students in the first department, while the great number of studies from flowers and the many excellent compositions of them displayed the proficiency of the students, as well as the care taken to make the study of nature and ornament go hand in hand. The figure proceeding from its course of outline drawing to its ultimate development in the study of the antique and of anatomy has also received a share of attention, and a promising commencement of the study from the life has been made.

Amongst the designs exhibited, a much greater attention has been paid to those departments immediately connected with manufacture, and to the reproductibility of the designs, than heretofore. We were much struck with a design for a printed druggist, No. 398, by Mr. J. B. George, which obtained a first prize, and which, we are happy to hear, had been purchased for manufacture; and by No. 367 (also a prize), a design for an Alhambra carpet, by Mr. M. Ruthven, about to be manufactured: an Alhambra design, for an Axminster carpet, No. 413, by Mr. C. Hanson, deserves also especial commendation for the beauty of its colour, as well as the successful arrangement of the details. Many other designs in this branch of manufacture would, we are convinced, well repay the attention of manufacturers. Some designs by Mr. Slocombe, for silk damask, were particularly deserving of the prize they obtained. A design for a paper-hanging for a gothic hall or library (No. 449), by Mr. Alldridge, deserved commendation. Many other designs for paper-

hangings also deserve great praise, and we were glad to hear that Messrs. J. Woollams and Co. had purchased for manufacture one by Mr. Cuthbert, who is, we believe, quite a youth. Several other designs by Messrs. Maze, Slocomb, George, Herman (master), Hyland, Cotchett, Horn, Raimbach, Dresser, Hodder (very clever), Rawlings, Pitcher, and others, and the designs for a breakfast service by Mr. Bell,—for muslins, by Mr. Hanson and by Mr. Hyland, were well deserving of attention and praise.

Some exquisite specimens of Honiton lace, manufactured from designs made in the school, were also exhibited. The designs were by Mr. Burchett, one of the masters.

In the female school also, the exhibition is very rich in designs for garment fabrics: in fact this branch is evidently the ladies' forte, and one in which, by assiduous cultivation, they will arrive at great excellence; some of the designs in this department, by Miss Alice West, are really beautiful, and indicate the possession of high talent. We would also mention Miss Louisa Gann, Miss Ashworth, and Miss Cary.

The studies from and compositions of flowers are also in this department highly meritorious, as well as the studies of ornament in chalk from the flat and round. The elementary works in outline were certainly not equally successful, and indicated a want of careful attention to this all-important stage of the course of instruction. With this single exception, the productions of the female school were highly creditable.

Some of the architectural drawings are very good, and Mr. C. J. Richardson (master) exhibits amongst other things a very elaborate design for a *cinque-cento* chimney-piece.

In conclusion, we cannot but express the pleasure we derived from an examination of the exhibition and the gratification we feel that such an opportunity has been afforded the public of seeing the actual state and efficiency of the school; and we congratulate the masters and the Board of Trade, although there is still much to be done, upon the successful results of what we are convinced has been a year of emulous exertion. And seeing the promise and the progress of the school, we trust that Government will not allow its energies to be cramped either by want of means or by want of room; but acting on the true economy of making every department efficient to the highest degree, will remove without delay those obstacles which impede its onward progress and the full realization of the objects for which the school of design was originally founded.

## THE INVENTOR OF THE PORTSMOUTH BLOCK MACHINERY.

IN the reign of George II., Mr. Walter Taylor, of Southampton, invented machinery for making blocks for ships. He died in the year 1759, shortly after having submitted his blocks to the Lords of the Admiralty, leaving Mrs. Elizabeth Taylor, of Southampton, his widow, and Mr. Walter Taylor, Jun. (afterwards of Portsmouth-green), his son. The blocks were first examined by the principal officers of the Admiralty and Ordnance, in the year 1759, and in the month of July, 1762, a trial was made between them and the best blocks before used, in the presence of the principal officers of the Navy, in the yard at Deptford, on which trial, those made by Mr. Taylor were found to be greatly superior to all others. The Commissioners of the Navy having contracted with Mrs. Taylor, for supplying the Navy with a quantity of the blocks, and being desirous of having the whole Navy supplied with them, she, in order to secure the benefit of the invention, obtained, as her late husband's widow, letters patent for the invention, dated December 6, 1762. The term of the patent was fourteen years. A specification, acknowledged by her, March 12, 1763, was enrolled in Chancery, March 19, 1763.

Under this patent Mr. Walter Taylor, jun., supplied the navy with blocks. At first he employed the labour of men to drive his machinery; he then used a horse mill; but, finding that inadequate, he obtained a water mill, near Weston, on the eastern shore of Southampton Water, where he erected works



in which he introduced friction wheels. The water often proving deficient at Weston mill, he erected mills on a much larger scale on the river Itchen, at South Stoneham. They were built of wood, and thence the place derived its present name of "Wood Mill." In the works in these mills he introduced straight-cutting saws, circular saws, which he called "round saws," and other improvements.

By a deed dated February 1, 1775, Mrs. Taylor assigned the patent to her son. In the next year, 16 George 3, he obtained "An Act for enlarging the term of letters patent granted by his present Majesty to Elizabeth Taylor, of the town of Southampton, widow, for the sole use and exercise of certain engines, tools, instruments, and other apparatus for making blocks, sheaves, and pins used in the rigging of ships," by which the benefit of the patent was extended for fourteen years more to Mr. Walter Taylor, jun. A further specification, acknowledged by him July 12, 1776, was enrolled in Chancery on that day. The following is the description of the invention and improvements given in that specification:—

The engine for boring of blocks and shivers consists of a square frame of wood, of different dimensions, screwed and keyed together, in which frame a bed or beds of wood with a groove in or are affixed, to which bed or beds is or are also applied two or more poppet heads, with a collar to one of the poppet heads, through which collar a maundrell of iron and steel runs, to be turned by a crank or a hand or foot-wheel, or by a horse or water-wheel, as the power may require, and to the maundrell the several instruments for boring the shivers of different sizes, in iron, brass, or wood, are screwed or fixed, which instruments are made and edged throughout from the entering end, and gradually increase one degree above another to the ultimate size of the intended boring. The larger instruments that follow the first sizes may, as required, run in a centre at the entering end; and likewise to the same maundrell are the tools screwed or fixed for boring of blocks, which are made of iron and steel, resembling centre bits of different sizes, and likewise other bits in a half circle like the pod of an auger, and turned up at the ends in different shapes, as the size of the borings requires. There are also frames of wood, screwed and keyed together, which slide in the inside of the frame first expressed, and on the top of the bed or beds, in the centre of which the said frames or slides are fixed with screws. The shivers, blocks, or what else is intended to be bored, should be placed for the said purpose at right angles to the boring instruments or tools above described, and applied in such manner as gradually to bring on the slides in the working while the instruments or tools are running round, and thereby complete by that mechanism the said borings.

The engine for making of pins is called the pin-engine, or witch; which pins may be made of iron, steel, metal, or wood; which engine has a hole in its centre of the size the pins are to be turned, in which is fixed a piece or pieces of iron or steel, sharpened at one end and fixed true with the inside of the hole; which pin-engine or witch is fastened to the front part of the slide above described for boring of blocks and shivers, in right angles with the maundrell above also described, to which maundrell the pin intended to be turned is fastened, so as to be turned round with the same in the inside of the hole whilst the slide is drawing on the pin, so as to complete the same.

The engine for turning the shivers consists of a strong bed or beds of wood, supported with posts and braces, on which are affixed two or more poppet heads, a collar, and maundrell,—to which maundrell are screwed other maundrells of different sizes, on which the shivers intended to be turned are made fast by screws, turned either with foot, hand, horse, or water-wheel.

The engine for sawing of blocks, shivers, and pins, consists of framed wood of different sizes, screwed and keyed together, at the end of which two other upright wood frames are affixed in right angles,—between which two frames there is another frame, in which the saw is strained or fixed so as to work backwards and forwards; and likewise there is a slide, supported on rails or rollers and slides in the inside of the frames, on which slides, the timber intended to be sawed for shivers, pins, or blocks, is fastened or fixed with screws, and moves, parallel to the end of the frame, under the saw, to a stop, which shifts to the different thickness required; and the said slide is fixed or fastened with screws on the side through the upright posts of either of the said two first-mentioned frames. A round saw or raws may be used to cut off shivers and to mortice the blocks with expedition,—which saw may be turned by a crank, or a hand or foot-wheel, or by a horse, wind, or water-wheel.

The improvement in coqueing of shivers, which may be made of lignum vitæ or other wood, consists as follows:—The bush or coque is made of

iron, or other metal, being cast or made with flanches at each end, or flap at one end, and a flanch fixed on the barrel of the bush or coque at the other end, which being let in even with the wood on each side the shiver, and rivetted together, so as to jam part of the wood between the inside of the flap and flanch, thereby secures the bush or coque from getting loose in the shiver; which shiver, when bushed or coqued, is fastened to the side of the engine before described for boring blocks and shivers, and is bored in the same manner as the shivers before described.

The improvement in working the before-mentioned engines for boring, turning, and sawing blocks, shivers, and pins, consists in introducing friction-wheels instead of cog-wheels, which friction-wheels are so made as the end way of the timber should rub one against another; by which means they run more steady, and are more durable, and make less noise than any kind of cog-wheels whatever,—may be turned by water, horse, or wind, or any other power,—and are made use of not only for blocks and shivers, and turning of pins, and sawing blocks, shivers, and pins, but may be made use of in boring boxes and turning axletrees for carriages, and all branches in which boring or turning is concerned.

After the extension of the patent, Mr. Walter Taylor, jun. granted licenses to several persons, including Messrs. William and Bartholomew Dunsterville, of Plymouth, Mr. John Irwin, of Chatham, and Mr. James Malling, of Liverpool, to use the invention within specified limits; and he entered into a partnership with Mrs. Susannah Loving, of Deptford, Mr. Thomas Fox, of Shadwell, and Mr. Samuel Farrer, of Deptford, for the supply of blocks to the yards at Deptford, Woolwich, Chatham, and Sheerness. He retained for himself the supply of blocks to the Portsmouth dockyard; and as long as the patent continued in force the navy was supplied with his blocks. When the patent expired, Mr. Walter Taylor, jun., endeavoured in vain to obtain a further extension of it. The naval authorities preferred being their own block manufacturers, and employed the late Sir M. I. Brunel (then Mr. Brunel) to fit up the requisite machinery. He did so, after having made a personal examination of Mr. Taylor's works at Woodmill, and the result is the present block machinery at Portsmouth dockyard.

I have thus endeavoured, as requested, "to redeem my pledge," by showing on what authority I claim for Walter Taylor the credit of being the original inventor of machinery for making blocks. I claim for him not the credit of being the inventor of "the block machinery," but the credit of being the first who invented any block machinery, and of being the inventor of that block machinery which embodied the ideas which Sir M. I. Brunel carried out. In my desire that justice should be done to the memory of Walter Taylor, I am anxious not to do the slightest injustice to that of Sir M. I. Brunel, to whom is to be accorded the credit of having very greatly improved and added to Walter Taylor's inventions. The difference between the works of the two men may be as great as the difference between Watt's first steam-engine and the most finished steam-engine of the present day; but Walter Taylor's fair fame may be maintained in Portsmouth Dockyard, without any more injustice to Sir M. I. Brunel than would be done to Napier by asserting, in his yard on the Broomielaw, that he is not the inventor of the steam-engine, and that his magnificent engines are but the development of Watt's invention.

It is, perhaps, impossible to apportion between Mr. Walter Taylor and his son the credit of the original invention comprised in the first specification, because they worked together before the death of the father in 1759; but the son appears to have been the exclusive inventor (between 1759 and 1776) of friction-wheels and the circular saw. They both used great precautions to prevent publicity being given to their inventions, as appears by "A particular account of the origin and progress of Mr. Taylor's machines for making blocks, shivers, and pins, and also of his improvements in the construction of pumps, all which are now used in his Majesty's navy," which was drawn up by the late Rev. W. Kingsbury, M.A., of Southampton (who married one of Mr. Walter Taylor's family), and was published in vol. II. of the "Hampshire Repository" (1801), page 86.

In deeds dated in 1776 and 1778, by which license to use the invention was granted, is a clause binding the licensee to keep the apparatus as private and secret as can be, to do all in his power to prevent any persons (except journeymen and servants employed in the work) getting at the knowledge of the invention, and not to allow any person of a mechanical trade to see the apparatus.

It is not improbable that these precautions (savouring more of commercial caution than would now be reckoned creditable in an inventor), tended to confine the knowledge of how much the Messrs. Taylor had invented within a narrow range, and so rendered it inevitable that the very great majority of those who saw "the block machinery," should regard Sir M. I. Brunel as its original inventor. It is right I should add, that Messrs. Taylor's claims were insisted on in some local publications during Sir M. I. Brunel's lifetime, and that, so far as I am aware, these claims were not disputed.

N. R.

#### EFFECT OF IRON ON MASONRY. WRINGTON CHURCH, SOMERSETSHIRE.

WRINGTON CHURCH, situated about two miles from Yatton, on the Great Western line of railway, is an interesting structure, partly of the fourteenth century but mainly of the fifteenth; the tower, of this latter date, is particularly fine, and there is a pretty bell turret at the east end of the nave, next the chancel. It is stated that originally there was a pulpit with seats outside the church, in the angle formed by the east wall of the south aisle of nave and the south wall of the chancel, which is the earliest part of the building. At the eastern angles of the chancel are some elegant niches. The interior of the church greatly needs rearrangement; a singularly ugly gallery at the west end should be taken down, and some lumbering pews removed.

The carved altar-piece is from a drawing by Mr. C. Barry, given, as we understand, in kindness, several years ago, and affords an example of the injustice that is done to an architect, when his drawings are carried out without his supervision, and the result marked with his name.

A tablet to Hannah More, who lived close by, is fixed inside, over the south door.\*

A short time since the writer was called upon to advise touching certain alterations contemplated in Wrington Church, and in the course of his examination discovered that the iron cramps, ties, and bars, used profusely, especially in and about the turrets and parapet on the top of the tower, had caused the disruption of the masonry to a most alarming extent. The fact deserves notice for the sake of other buildings; and the following portion of the report will shew the extent of the mischief:—

"I find the greater part of the stonework above the level of the lead-flat is in a very insecure state, and requires immediate attention. The pinnacles on the angle turrets and in the centre of each side of the tower are loose; some of the stones are ready to fall, and in so doing would probably materially injure the body of the church.

The dilapidation appears to have been mainly caused by the profuse and injudicious use of iron in the shape of cramps and stays,—which, by contraction and expansion through change of temperature, and increase of size through oxidation, have dislodged and split the stones to a singular extent.

The pinnacles on the parapet of nave roof are loose: in some instances the stem is split, from the cause already mentioned. A settlement has been caused at the east end of the nave by cutting away part of the south pier of chancel arch to admit the pulpit, but there does not seem to be reason to fear any further immediate ill effects from this.

Your church is such an interesting specimen of the architecture of the fourteenth and fifteenth centuries, and the tower especially so fine in its proportions and general effect, that I feel it to be my duty to urge strongly, that any repairs which

\* In the parish books here, as the writer was told, occurs this startling entry:—"Paid 3d. for an author's head." This is not to be taken, however, as proving the reign of Jack Cade here, or any hatred to literature on the part of the parish, but merely want of it on the part of the scribe who had thus entered the payment of the premium offered for the death of an officer. The Rev. William Leveson, rector of this parish for nearly fifty years, was the composer of "Aud Robin Gray." The present rector is the Rev. John Vane. The churchwarden, Mr. John James, has a just idea of the importance of dealing properly with the structure in his charge.



are determined on should be executed under proper professional superintendence. I make this remark without fear of having my motive misinterpreted, and am, &c.,

GEORGE GODWIN, Architect."

It is much to be regretted that no steps have yet been taken effectually to remedy the evil. The whole country is interested in the preservation of such a structure as Writington Church. Yatton Church, it may be added, has several points of great interest. In style it is chiefly Perpendicular,—the chancel is perhaps earlier. The south porch is very elegant. The spire is truncated, like that of St. Mary Redcliffe,—very much in the same proportion indeed, and the "cock" at both churches would seem to have proceeded from the same maker. Much of the stone work is in a bad state. The ceiling inside, with white ornaments, is abominably ugly.

#### INCINERATION OF THE DEAD.

AN objection has been started by a correspondent, "E. E." to which we should have ourselves alluded had we viewed the matter exclusively in the strong light in which "E. E." has placed it, but although quite cognizant of the possible objection, we were equally impressed with the force of counteractive benefits which seemed to us more or less to neutralize or nullify the force of that objection itself. Under present circumstances, urges our correspondent, "a body may be exhumed, though months may have elapsed, and chemical analysis or surgical examination will detect the presence of poison, or trace the effect of violence, and perhaps supply the last and most essential link in a long chain of evidence, ending in the discovery and conviction of the authors of a foul crime. But if the bodies of our dead are subjected to the action of fire, such evidence would, of course, become impracticable, for the flame which destroys the mortal frame, will, at the same time, consume every record of the causes of its dissolution." Now, while we must not pretend to close our eyes to the fact that there is, on the one hand, great force in such an objection, we must, on the other, do all justice, even as a mere speculation, to the merits of the idea objected to. In the national re-adoption of the ancient practice of incinerating the bodies of the dead, the process would, or ought to be, itself a national one,—that is, in each and every case be effected by a proper functionary, whose first care would be to satisfy himself that the death did not occur from violence, and we think that thus far, at least, the consciousness that there would be no such chances as at present exist of budding up the victim of private violence into a box and burying him out of sight, would of itself go far to prevent such a crime as that to which our present practice itself certainly affords not only private protection but positive temptation. As to death by poison, our correspondent is mistaken in supposing that the burning, or incineration, or carbonization of the dead must needs "consume" all record or evidence of the cause of death. On the contrary, every particle of such poisons as are capable at present of affording evidence under chemical test in such cases of exhumation as those instanced, namely, mineral poisons, would be preserved along with the remains of the dead, which do not necessarily require to be the product of an open flame, produced by foreign elements, and dispersing along with these the substance of the body. In the funeral urn which holds these sacred remains of humanity, therefore, would be preserved, even for ages, every evidence at present available only for months, or, at furthest, till mixed and scattered with the soil by the indiscriminate diggers of graves. The evidence of the urn itself would thus be a surer preventive even to the crime of the poisoner than his present chance of detection, after once managing to hide his victim under the ceremonies of the bier and the soil of the grave. And, moreover, the inquest system, which even now protects our lives to some extent against sudden extinction by criminal means, could easily be made more stringent and comprehensive, were there felt to be any necessity for it in the attainment of so great a good to the living as the saving of their lives, by thousands, from the poison of putrifying

humanity,—a deadly poison, now, itself, really criminally administered by wholesale within the precincts of every city and town.

#### THE BUILDERS' BENEVOLENT BALL.

THE second anniversary ball in aid of the funds of the Builders Benevolent Institution took place on the 31st ult., and passed off triumphantly. It was admirably well managed, most respectably and numerous attended, and will, doubtless, be as productive to the resources of the charity, as its warmest friends anticipated. "You really must say something more about our ball than that it took place," writes an active member of the Institution. Well, but our readers do not expect to find lists of quadrilles and polkas, praise of Adams's band, and commendation of pretty women in THE BUILDER. "Nay, but this was a builders' ball, and as such, we may surely have a few lines." We willingly yield. Notwithstanding the cross reply of one or two architects to the committee's request that they would act as stewards, the committee have our hearty concurrence in the step, ay, in all their steps of that evening, whether in the committee-room, or in the *schottische*. We plead guilty of salutory predilections, and see nothing derogatory in the indulgence, or in taking advantage of the universal love to benefit an important charity. Those who would be *always* wise are very foolish. As Shakspeare says,—

"Why should a man whose blood is warm within,  
Sit like his grandire out in alabaster?  
Sleep when he wakes? and creep into the jaundice  
By being peevish?"

The ball was held at Willis's Rooms, St. James's, where every corner

"Blazed with lights, and bray'd with minstrelsy," and there could not have been many less than 700 persons present, who all seemed to enjoy themselves intensely, and were in no hurry to leave. But as the great poet we have already quoted says,—

"These violent delights have violent ends,  
And in their triumph die:—"

the morning came, the lights went out, and the guests went home; and they took with them the pleasant reflection, that while they had spent a pleasant evening themselves, they had been providing means for the relief of the unfortunate and distressed.

The success was greatly contributed to by the excellent president of the Institution, Mr. William Cubitt, M.P., and by Mr. Joseph Bird, the hon. secretary, and Mr. George Bird, the treasurer,—birds of one feather, though not of one nest.

#### A HINT TO LITHOGRAPHERS.

MACLURE'S ILLUMINATED ALMANAC.

THIS is a specimen of printing in colours from stone, by the house of MacLure, Macdonald, and Co. It represents a Gothic interior, with knights in steel, lady in robes, curtains, books, and arms, and an enormous "poster" against the wall, on which appears the calendar. Two usually discriminating contemporaries, whose good opinion is worth something, have given unqualified praise to this production, which is, in truth, quite discreditably to the respectable house from whom it emanates. Over a circular-headed doorway, in the side, is a rose window so close down upon it that there is no room for the arch: the rose window itself, more like a wafer stuck flat upon the wall, and the stonework around it, are so ridiculously out of drawing as to put criticism out of the question. The figures at the head of each month on the calendar are in modern costume, while the living occupants and furniture of the apartment are mediæval. Modern men and women may walk about before mediæval pictures, but the reverse is of course inexcusable. We should have passed the matter by for the consideration that Messrs. MacLure might be led by the praise in question to think their production all right, and issue a similar atrocity next year. Let them obtain a proper design when they next wish to show the public what they can do, and then their own particular art will have fair play, and gain the applause it deserves.

#### THE DRAINAGE OF LONDON. METROPOLITAN COMMISSION OF SEWERS.

A GENERAL court was held on Friday in last week, Lord Ebrington in the chair, and present Sir H. de la Beche, Captains Vetch and Dawson, and Messrs. Peto, Hardwick, Hawes, and Lawes, when the principal business done consisted in the passing of a resolution, unanimously agreed to, "that Mr. Forster do consider and report on the best arrangements for obtaining a reduced plan of the metropolitan districts;" this resolution, if we rightly understood the mover, Captain Dawson, being preliminary to one which he should move, to the effect, "That Mr. Forster do consider and report on the best arrangements for the drainage of the metropolis."

The outcry out of doors relative to the consideration of Captain Vetch's plan is loud. The following is one of many letters to us on the subject:—

Sir: Will you permit me to direct attention to the apparent jobbery which is prevailing amongst the Commissioners of Sewers? They advertise for plans, to be limited to October, 1849, and receive 160 upon the faith that they are to be adjudicated upon with candour and fairness: Captain Vetch's is not amongst them. The first act they do after imposing an eightpenny-rate is to appoint an engineer, who has sent in no plan, at 1,500*l.* per annum; and the next is to place some quondam suggestions of Captain Vetch foremost upon the list of schemes; the calculations to be made by their new engineer; and, to crown all, Captain Vetch to sit as a commissioner, and give judgment on his own plan in competition with the others! Can any thing equal this? What is to become of the other plans we are left to guess.

JUDEX.

#### BUILDING OPERATIVES' PROVIDENT ASSOCIATION.

A PUBLIC meeting of foremen and workmen engaged in the various departments of the building trade was held at Exeter Hall, on the 1st, for the purpose of taking into consideration the objects of the proposed Provident and Friendly Society for Building and Engineering Workmen; also for the purpose of electing a committee to co-operate with that already formed.

The meeting was very numerously attended; Mr. Kay in the chair. Resolutions were passed strongly approving of the proposed association; and the following were elected to form a committee:—Mr. Willoughby, foreman of plasterers to Mr. W. Cubitt; Mr. Dines, general foreman to Mr. Thos. Cubitt; Mr. Bennett, general foreman to Messrs. H. Lee and Son; Mr. Wood, mason to Messrs. Brown and Rusby; Mr. Goulding, engineer and smith to Mr. Thos. Cubitt; Mr. Ward, mason to Mr. Grissell; Mr. Monument, foreman of bricklayers to Messrs. W. Cubitt and Co.; Mr. Thos. Holland, foreman of joiners to Mr. Thos. Cubitt; Mr. Allard, foreman of joiners to Mr. Patricks; Mr. Clay, foreman of masons to Mr. Baker; Mr. Rhodes, painter to Mr. Thos. Cubitt; Mr. Dubbs, foundryman, &c., to Mr. W. Cubitt; and Mr. Hawking, foreman to Mr. Trego,—which last was afterwards elected secretary, and will gladly receive suggestions.

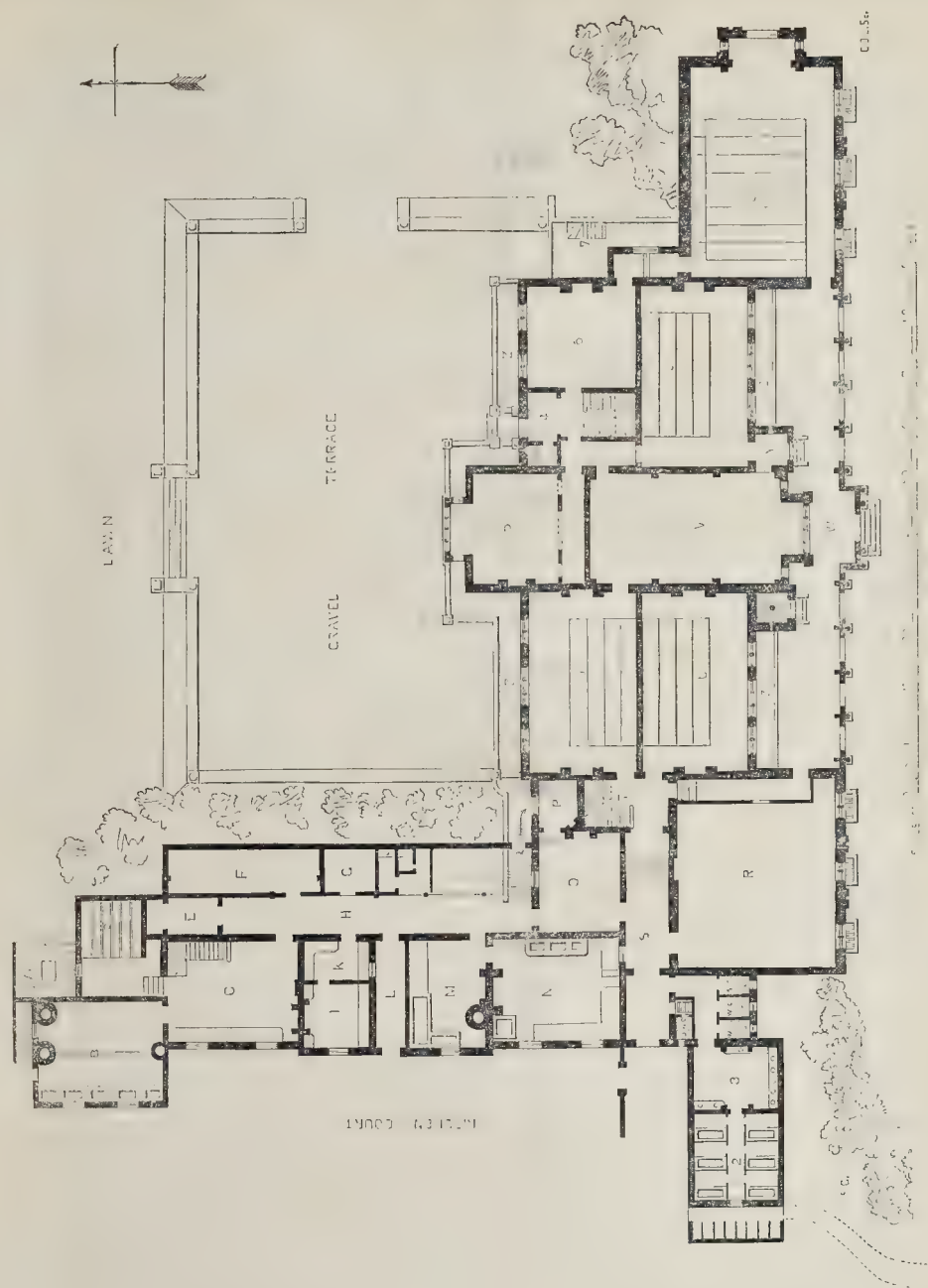
ARCHITECTS' TROUBLES.—In addition to the list already given, how often is the architect obliged to contend with an absurd restriction of price as compared with the accommodation required. How, then, with so little confidence or liberality, can a perfect and suitable design be accomplished? how can an architect carry out the "economy of room," or "propriety of order," with unjust and inconsistent parsimony, coupled with the preconceived ideas of the employer. A person requiring the erection of any building, should first state the amount he intends expending, and then ask if such and such arrangements could be executed for that sum. Instead of which the architect, unable to persuade his employer of the erroneous ideas that fill his head, or overcome his fancied economy, is obliged to compile a work from the ridiculous notions of his client, with scanty and mean details and a host of improprieties.—F. W. S.





KNELLER HALL TRAINING SCHOOL, WHITTON.—MR. GEO. MAIR, ARCHT.





## REFERENCES TO PLAN.

## SERVANTS' DEPARTMENT.

- A Steam-engine room, &c.
- B Washhouse.
- C Laundry.
- D Drying-room.
- E Knives, shoes, &c.
- F Coals, wood, &c.
- G Store.
- H Covered way.
- I Store-room.
- K Weighing-room.
- L Tradesmen's Entrance.
- M Scullery.
- N Kitchen.
- O Housekeeper's-room.
- P Ditto store-closet.
- Q Way to larder, dairy, &c., under class-room.

## SCHOOL DEPARTMENT.

- R Dining-hall.
- S Corridor.
- T Pupils' stairs to dormitories.
- U Class-rooms.
- V School library and reception-room.
- W Ambulatory, with glass roof.
- X Pupils' stairs to chapel over library.
- Y Entrance to reception-room.
- Z Areas.
- 1 Urinaries.
- 2 Bath-room.
- 3 Day washhand-room.

## THE PRINCIPAL'S RESIDENCE.

- 4 Hall and staircase.
- 5 Dining-room.
- 6 Library.
- 7 Entrance for tradesmen to servants' offices.

N.B. A clothes-brushing room and shoes-cleaning room for pupils is under the dining-hall, R.

## GROUND PLAN OF KNEELER HALL TRAINING-SCHOOL.

MR. GEO. MAIR, ARCHTCT.







in violation of the pure taste that presided over its adornment. The 'cedar parlour' is of a mellow and yet delicate colour, panelled with that expensive wood from the floor to the lofty ceiling. The adjoining room is finely proportioned; but the room on the opposite side of the building is the one that particularly attracted the attention of our artist friend. The chimney-piece still boasts some undisturbed carving, and there is a door remarkable for its simplicity.\*

This probably was the architect's study; his own proper room. We would give much to know whose bust originally occupied the position which its present possessor has assigned to Sir Walter Scott. Perhaps Inigo Jones or Michaelangelo. And the window, which now only looks forth towards a chapel, then opened upon a trim parterre, guarded from all harsh winds by the 'hedges of yew,' and enjoying a sight of the 'pretty grove of oaks' that commanded even Evelyn's commendation, despite the 'melancholie' of 'Camerwell.' Here the most wonderful of men reposed from his fatigues, and, relying with the high faith of a Christian spirit upon the God who works all things together for good to them that trust in Him, was never bowed down, never shaken, never turned from his loyalty to his maker, to his ruler, to his art. Well might Steele aver that 'his personal modesty overthrew all his public actions; the modest man built the city, and the modest man's skill was unknown!'

Here, perhaps, originated the meeting which Herder asserts was the origin of the Freemasonry of St. John. Here, with a few friends, to save his journey home to dinner, he arranged to dine somewhere in the neighbourhood of St. Paul's; and a club was thus formed, which by degrees introduced a formula of initiation and rules for the conduct of the members expressed by symbolic language, derived from the masonic profession. Knight thinks it rather corroborative of Herder's assertion, that, while the biographers of Wren mention the attendance of the lodge of Freemasons, of which he was the master, at the ceremony of placing the highest stone of the lantern, no mention is made of their attendance at laying the foundation stone; and every lodge in Great Britain is an offshoot from the lodge of antiquity of which Sir Christopher was master! We can fancy these walls covered with his plans, and, as the twilight gathered round us, might almost hear the music of his clear, sweet, demonstrative voice replying kindly to those who questioned upon all points, by short but satisfactory answers. Perhaps when at breakfast in this very room, when told that the frightful hurricane of the previous night had damaged all the steeples in London, he observed, with his quiet, faithful smile, 'Not St. Dunstan's, I am sure.'

### Books.

*Suggested Legislation with a View to the Improvement of the Dwellings of the Poor.* By G. POULETT SCROPE, Esq., M.P. Ridgway, Piccadilly.

IN this little pamphlet the author proposes to exempt from poor rate, or rather from local taxation generally, dwellings below a certain annual value; and to prevent the demolition of cottages and the hindrance to their erection in 'close' parishes, by re-enlarging the area of poor-law taxation to the union in place of the parish. A third point suggested is such a relaxation of the law as shall empower life-owners of property to grant modified or limited titles to sites for cottages.

*London (Watford) Spring-water Company. Report to the Directors.* By Mr. S. C. HOMERSHAM, C.E. Weale, High Holborn.

*Remarks on the Water Supply of London.* By Sir WILLIAM CLAY, Bart., M.P. Ridgway. The former of these relates to the source, quality, distribution, and cost of the projected Watford supply, and contains a map of the district and work-sites, a geological map, and a section of the experimental well at Bushey Meadows, Herts.—In the latter, the author, who is chairman of the Grand Junction and

Southwark and Vauxhall Water Companies, contributes what he regards as exclusive information, to the public, derived through his official position. The necessity of some decided improvement in the supply of water to the metropolis, however, even he clearly admits, while advocating the cause of established companies.

*Elementary Instruction in the Art of Illumination and Missal Painting on Vellum, with Illustrations for Copying, for the Student.* By D. DE LARA. Ackermann, Strand and Regent-street.

M. DE LARA here gives some useful elementary instruction, such as his pupils doubtless derive from his personal teaching, but ought to have gone farther.

*The Year-book of Facts for 1849-50.* By JOHN TIMBS, editor of "The Arcana of Science and Art." Illustrated with engravings. Bogue, Fleet-street.

As valuable and sterling an accumulation of fresh contributions to the riches of science and art as ever, as our readers will all the more readily believe when we hint to them that for much of it, admittedly, the judicious editor is indebted as heretofore to the treasury of THE BUILDER. By the way, in a memoir of Captain Sir John Franklin, a portrait of whom accompanies the present volume, we observe it stated, that the first wife of Sir John was the youngest daughter of Mr. William Porden, the architect.

### Miscellaneous.

**DEFLECTION OF IRON GIRDERS.**—It is considered that girders should not deflect more than from 1-600th to 1-400th of their length according to the form of the girder. It does not appear from the evidence given before the Strength of Iron Commission that a weight equal to what a girder is constructed to carry will, even if left on for any length of time, cause the deflection of the girder to increase, unless subjected at the same time to considerable changes of temperature. Some experiments made by Mr. Fairbairn and Mr. Braidwood show that iron loses a considerable proportion of its strength when heated to a temperature of more than 220° F., and that it becomes uncertain below 32°. Mr. Clark described the effect of the sun coming out and shining on the Conway tubular bridge for half an hour to have been to raise the tube vertically one inch; and he mentions that at night, from the lower temperature, the deflection was always greater than in the day-time. Mr. Fox instances the effect of frequent and great changes of temperature on some short girders, 6 feet long, which support the hoods of the forges in his workshops. In the day-time they are so warm that the hand can only just bear the heat; and at night they become cold. The effect is to make the girders *swag*, and the swagging appears to be continually increasing. Some have attained as much as 3" deflection in the centre; but their strength does not seem to be impaired. The general opinion as to the amount of test which should be applied to girders appeared to be, that the test should amount to twice the greatest load. Mr. Joseph Cubitt would employ three times the greatest load, or half the breaking weight; and Mr. Thomas Cubitt considers it safer to test a girder almost to the extent that would break it than not to prove it at all, as the testing of girders is the only means of discovering defects under the surface and concealed from the eye. Mr. Brunel, however, thinks that a girder should not be tested with a weight exceeding the greatest load, as the object in testing is to ascertain the soundness of the casting, which may be judged of by its appearance under the load, and all risk of permanent injury should be carefully avoided.

**THE AMERICAN INTERNATIONAL ART-UNION.**—The first annual distribution of this society took place on the 10th January. The principal prizes were Ary Scheffer's "The Dead Christ," and Woldmuller's "Children leaving School." The number of subscribers was 5,600, and the sum paid, 28,000 dollars. 1,200 dollars were appropriated to send a young artist to England for two years to study.

**PROVINCIAL.**—St. Nicholas's Church, Witham, has been re-opened, after having its pews replaced by open oak seats, two galleries at the west end removed, and the tower window exposed to view, &c. The window is to be filled with stained glass by Wailes, presented by Mr. J. T. Scott, as a memorial of Mr. H. Mortimer, a native of Witham, who was killed while acting as clerk of works at Hamburg Cathedral, as already noticed in THE BUILDER. By the alterations 150 sittings have been gained.—Tenders have been lodged for the erection of a Wesleyan school-house at South Molton, the highest 248l., lowest, 170l.—A new mariners' church has been erected at Runcorn, by the Earl of Ellesmere. It is in the Early English style, and of rough walling stone: roof and seats open; sittings, 220.—During the late high tide, the new dock excavations at Sunderland were flooded, and it will cost 1,200l. and a month's delay to pump out the water.—The Cocker-mouth churchyard has become so choked with the remains of human bodies, coffins, and earth, that the pressure from within has burst out the high wall surrounding it, and thrown down the greater part of a mass 14 feet high, and 80 to 90 yards long.—The back wall of a store in Alston-street, Glasgow, almost opposite the sugar house which fell, gave way on Tuesday week, and fell into a court behind the building, which was filled with flour and other goods, and had been partly rebuilt and strengthened with iron fastenings, at the instance of the Dean of Guild Court, shortly after the catastrophe at the sugar house.

**IMPROVEMENT OF THE ROYAL HOSPITAL, GREENWICH.**—As President of the Greenwich Society for the Diffusion of Useful Knowledge, I cannot allow the Vandal proceedings in these improvements without recording my veto against a part of them, and I do hope that the insertion of this letter in your valuable publication will have the desired effect of drawing the attention of those who may yet prevent the disgrace of this noble institution. The removal of the unsightly outbuildings and forming lawns is certainly a great improvement, and will add much to the beauty of this building, but it is to be regretted that in rebuilding the lodges at the head entrance they should have been advanced so far as to obtrude on the footway,—it is the opinion of all persons of taste that they should certainly have been kept in a line with the lower helpless wards and the mews. Now, my opinion is, that this mews is the real cause of the gates being placed so close to the road side as must interfere with the ingress and egress when the steam-boats discharge their thousands of visitors to Greenwich; and, forsooth, this mews only contains two horses belonging to the little commissioner who has the whole arrangement of these improvements. I will not add more, but leave the case in the hands of public opinion, that the head entrance may yet be placed in its proper situation.—PRIOR PURVIS, M.D.

**THE ALMSHOUSES OF FISHMONGERS' COMPANY.**—In your agreeable article on the Fishmongers' new almshouses, you say, and truly, that the site was then (when the present almshouses were built) an open healthy spot in the country, far away from the town. It is now in the heart of a crowded neighbourhood; the buildings, too, are dilapidated; and you go on to add, "and for these, or other reasons, with which we are unacquainted, the Company determined on the removal of the hospital." &c. I beg to inform you that the reasons you have mentioned were precisely those which decided the Company to the change, viz., that the site was no longer what was suitable and what the founders fixed on, but, indeed, the very reverse, as everybody will allow who knows the vicinity; and the buildings being so dilapidated as to require re-erection, it was a question whether they should be rebuilt on the spot or elsewhere. It was a difficult matter to find a new suitable situation; ground about London is every where so sought for. To remove too far was objectionable; to be clear of the smoke and fog and noise of the town was desirable; and the new site offering, the Company decided on buying it, though at a very considerable cost, out of their own funds. They expect their reward in the satisfaction arising from a compliance with the wishes of the founders, and the providing means of ease and happiness for decayed members in the decline of life.—W. WANSLEY.

\* This is scarcely the correct expression; but the excellent writer, fortunately for her, is not an architect. The door has a cap with console, and a large elliptical 'broken pediment' with a bust in the gap.—ED.



**RAILWAY JOTTINGS.**—The weight of one of the wrought-iron land tubes of the Britannia-bridge, 650 tons, in being joined to the main span, has had the effect, it is said, of raising up the centre of the main tube, of 1,600 tons weight, upwards of 2 inches, and of course adding materially to its rigidity and strength. A similar operation has to be performed with the land, or terminal, tube on the other side. The preparations for this are nearly completed. The boiler of a locomotive near Newcastle exploded the other day, and killed the fireman and seriously injured the driver and guard. The explosion of a locomotive-boiler is a rare circumstance. The lower roadway of the high-level bridge at Newcastle was to be opened on Monday last. Foot and horse passengers, cattle, &c., are to be allowed to pass along this roadway; tolls of 3d. per foot passenger, 5d. per score of cattle, &c., being exacted. A large shed at the Perth terminus, filled with wood, took fire on Friday week by the over-heating of a stove for drying the wood, and was totally destroyed, with all its contents. The railway calls falling due in February, as far as announced, amount to 1,030,041*l.*, against 1,579,541*l.* last year, and 2,140,541*l.* in 1848. The proportion of the 1,030,041*l.* called by foreign companies is 250,000*l.*

**MODELS FOR STUDENTS IN DRAWING.**—Press of matter has prevented our earlier notice of a novel and very ingenious set of models for drawing from, consisting of churches, summer-houses, bridges, &c., which have been constructed by Mr. Fahey and Mr. B. R. Green, artists, both favourably known to the public. They are so constructed, that when not in use, they can be folded up, and contained in either a table drawer, or ordinary folio. By this contrivance, the objections held against models, from the space they occupy, is completely removed, at the same time they are protected from dust and injury. Regarding them as a means of education, and as offering another and great inducement to draw from objects rather than flat surfaces, we direct the attention of our readers to them. For schools they will be found very valuable. The principal art in drawing consists in representing round or solid objects on a flat surface; in the effort to do this the mind of the pupil is exercised. On the other hand, if engaged in copying drawings or prints, he is merely transcribing from one flat surface to another, a necessary, or at least useful preliminary, but one which is too often regarded as the end instead of the means. These models are progressive from the simple cube to the more complicated forms we have noticed above, and being coloured to represent the real object, are more likely to engage the attention of the student.

**IRON STAYS TO OUR WOODEN WALLS.**—A Liverpool gentleman, according to the local *Times*, has introduced a plan for building wooden ships with iron ribs and stays for the exterior planking. A first-class vessel, to cost not more than 10*l.* a-ton, is already on the stocks.

**THE TIMBER TRADE IN LIVERPOOL.**—According to Messrs. Chaloner and Fleming's circular, prices during the past year have not varied much, Quebec pine generally ruling at 13*½*d. to 14*½*d. per foot, and just now at 13*½*d. to 13*¾*d. per foot; St. John's pine ruling generally at 1*l.* per inch of diameter per foot; and spruce deals, which at one time declined to 6*l.* 15*s.*, have lately recovered to from 7*l.* 15*s.* to 8*l.* per standard. The following table contrasts the tonnage employed in the timber trade this year with that of the previous one:—

From 26th January, 1849, to 26th January, 1850.			
Quebec .....	133	vessels,	96,612 tons.
St. John, &c. ....	262	"	129,171 "
Baltic. ....	57	"	14,141 "
Total. ....	452		239,924 "
From 1st February, 1848, to 26th January, 1849.			
Quebec .....	105	vessels,	76,557 tons.
St. John, &c. ....	211	"	113,629 "
Baltic. ....	81	"	26,163 "
Total. ....	397		216,349 "

Complaint is made of the check given to the trade by a return to high rates for carriage on the part of the Railway and Canal Companies,

**METAL COVERING FOR BUILDINGS.**—A patent has been granted to Matthew Stewart, of Philadelphia, Pennsylvania, for an improvement in cast-iron plates for covering buildings. The invention consists in forming the rectangular plates with rebated edges on opposite sides, flat on the upper side or surface, and concave on the under surface, having two of the corners of each plate cut off parallel, causing the plates to combine and unite, and form close joints, having broad bearings to rest on the sheathing or laths, and a perforated protuberance or knob, and a countersink in the same, to admit the shank and head of a screw back of the point of junction of the cut-off corners of the plates, so that when a plate is required to be removed, it becomes only necessary to withdraw the screw, and slide the plate back from beneath the contiguous plates, and it becomes separated therefrom as before described. The patentee likewise claims the manner of constructing the triangular-shaped plates, having the long sides turned down nearly at right angles to the face of the plate, and notched and ribbed for the facility of interlocking their ends and securing them together against the gutter, the short sides being rebated in a similar manner to the above-named rectangular plates, in order to be fitted under the same and be combined therewith, as described and represented. And also, constructing the ridge cap, like an angular roof, with a vertical plate projecting down from the apex, and perforated to admit bolts or screws, by which it is secured to the ridge pole, the sloped sides being made sufficiently wide to extend over the adjoining plates on either side of the ridge, as above described and represented.

**PUBLIC MONUMENTS IN PARIS.**—The *Constitutionnel* gives the following statement of the cost of several of the principal public buildings of Paris. The building of the Arc de Triomphe de l'Etoile, decreed by Napoleon in 1806, interrupted during the first years of the Restoration, resumed after the Spanish campaign, and finished in 1836, cost 10,432,000*fr.* The church of the Madeleine commenced in 1764, slowly continued up to 1789, abandoned till 1816, and terminated in 1842, cost 13,079,000*fr.* The hotel of the Quai d'Orsay cost 11,340,000*fr.* The hotel of the Minister of Foreign Affairs, which is now just being completed, will have cost 5,000,000*fr.* The July column cost 1,224,000*fr.* The new Chamber of Peers, terminated in 1841, cost 3,900,000*fr.*

**LIGHT AND HEAT FROM DECOMPOSED WATER.**—We have gleaned a few more particulars as to the subject of a somewhat obscure paragraph already alluded to. At New York it is said there is "a stir among the scientific" as to the alleged discovery, by a Mr. Payne, of an almost expensiveness mode of decomposing water "without galvanic batteries, or the waste of metals or acids, and by the aid only of a very small machine of less than 1-300th part of a single horse power, producing 200 cubic feet of hydrogen and 100 feet of oxygen an hour, and yielding heat equal to that of 2,000 feet of coal gas, and light equal to 300 common lamps for ten hours." This new transatlantic wonder has been successfully tested, it is said, for six months, and is to be patented. "The only actual expense of warming houses by this apparatus is that of winding up a weight like that of a clock once a day!"

**THE ENGINEERS AND GOVERNMENT INTERFERENCE.**—At the meeting of the Institution of Civil Engineers last week, at the termination of the discussion, the attention of the members was directed to a case of legislative interference whereby the free exercise of the professional skill of the members of the Institution was, it was said, unwarrantably trammelled, and the public service materially interfered with. The introduction of wrought-iron instead of cast-iron into railway bridges was a recent invention of great value, and of which the most celebrated examples were the Conway and Britannia bridges. The same executive authority which had pronounced the erection of these two bridges to be impracticable, had recently declared that a railway bridge constructed on a similar principle, and of identical materials, was insufficient in strength, although it was much stronger, in proportion to its possible load, than either the Conway or the Britannia, and infinitely stronger than

any of the cast-iron girder bridges which had for years adequately performed the public service, and had been by the same authority pronounced to be perfectly safe. The public had, thus, already been for a month deprived of the use of an important line of railway by the application of an antiquated formula to a modern invention. For these reasons, it was considered that the members had a right to request the interference of the council on the behalf of the profession at large; and they were urged to take such steps as appeared desirable for allowing the free development of engineering talent,—and, in the words of the report of a recent Royal Commission, removing from "a subject yet so novel and so rapidly progressive any legislative enactments with respect to the forms and proportions of the iron structures" of railways, which could not fail to be "highly inexpedient." This proposition was received with acclamation.

**CONTRACTS IN BRICK WORKED OUT IN STONE.**—In the Bail Court, Mr. Justice Erle has granted a rule to show cause why an arbitration should be set aside as irregular, in which the rule of practice on railways in increasing the dimensions of work one-eighth where stone is substituted for brick, seems to have been departed from, and a decision granted based on the original dimensions of the work. Mr. Pratt, builder, Birmingham, executed the work under contract with Mr. Tredwell, contractor for a portion of the Oxford, Worcester, and Wolverhampton Railway, at Stoke Prior. The rule *nisi* was granted, however, on the ground of contingent irregularities in the decision of the arbiters, rather than on the question of precedent in practice.

**PEAT CHARCOAL.**—Mr. Jasper Roger's proposal to sweeten the metropolis by the use of a well-known absorber of noxious gases, namely, charcoal, but especially peat charcoal, and his arrangements to effect this, as more than once brought under the notice of our readers in *THE BUILDER*, have met with a favourable reception in the French metropolis, where a Government Commission has been appointed to investigate its merits.

**SANITARY IMPROVEMENT OF THE METROPOLIS.**—A highly influential and numerous meeting, convened by the Metropolitan Sanitary Association, was held on the 6th inst., at the Freemasons' Hall, Great Queen-street, the Bishop of London in the chair, when impressive addresses were given by the chairman, the Bishop of Chichester, Lord Ashley, Lord Robert Grosvenor, Mr. Wylid, M.P., the Rev. Dr. Cumming, Mr. Charles Dickens, and others, and comprehensive resolutions were passed, in which Parliament was called on to legislate, and the Board of Health to co-operate with the association towards that end.

**DESTRUCTION OF TIMBER AND BUILDINGS BY FIRE.**—On the 7th inst. a serious fire broke out in the timber yard of Mr. George Myers, in Belvidere-road, and in a very brief space of time the whole of one side of Guildford-street, including some of Messrs. Grissell and Peto's old premises, besides eight large houses in York-road, were levelled with the ground, and the flames were still raging when the morning papers went to press.

**A WORD TO OUR ARTISTS.**—Believe that there is that in the fact of truth, though it be only in the character of a single leaf earnestly studied, which may do its share in the great labour of the world; remember that it is by truth alone that the arts can ever hold the position for which they were intended, as the most powerful instruments, the most gentle guides; that, of all classes, there is none to whom the celebrated words of Lessing, "That the destinies of a nation depend upon its young men between nineteen and twenty-five years of age," can apply so well as to yourselves. Recollect, that your portion in this is most important; that your share is with the poet's share; that, in every careless thought or neglected doubt, you shelve your duty, and forsake your trust: fulfil and maintain these, whether in the hope of personal fame and fortune, or from a sense of power used to its intentions; and you may hold out both hands to the world. Trust it, and it will have faith in you,—will hearken to the precepts you may have permission to impart.

\* From No. 2, of "The Germ." (Aylott and Jones.)











# The Builder.

No. CCCLXVII.

SATURDAY, FEBRUARY 16, 1850.



OME time ago we quoted a passage from Mr. Freeman's "History of Architecture," but we have not yet given our readers any account of the contents and tenor of his book.\* Let us now endeavour to do so. According to the author, the idea which he kept in his mind during its composition was, the Historical Study of the Art of Architecture; and his work is an attempt to trace, as simply and popularly as the subject will admit, this history in its developments among all nations, looking at once to the artistic principles of successive styles, and the manner in which they are carried out in their more prominent details. He has not sought, he says, to make it either archaeological or ecclesiological, unless incidentally, but its aim is, "to trace, with as little reference as possible to extraneous matter, the historical sequence of styles as distinguished by their pervading principles, and the influence wrought upon them by those circumstances which mould the mind and manners of a nation. Attention will be rather given to the grand features of outline and composition than to the minutiae of detail, unless when the latter really illustrate principles of art. Detail has been already sufficiently treated of in several works, all of which have their use, while no popular work, unless the thoughtful and truly original volumes of Mr. Petit can be ranked under that head, has yet paid much attention to the former."

The work consists of a general introduction and two books. The introduction has three chapters: 1. Design and scope of the work; 2. Causes of the diversity of styles in architecture; 3. Division of styles in architecture. The first part of Book I., treating of the earlier and ruder forms, has five chapters: 1. Pelasgian architecture; 2. Of early columnar architecture; 3. Of the ancient architecture of India; 4. Of Egyptian architecture, and 5. Of the ancient architecture of Western Asia. In Part II., treating of Grecian architecture, we have—1. Of the origin of Grecian architecture (timber-construction, he thinks, and owing nothing to Egypt); 2. Of the three orders of columns (the Doric the most perfect, the Ionic the least); 3. Of temples, and other buildings of Grecian architecture; and, 4. General review of Grecian architecture, which he maintains is not adapted to modern uses. The Second Book is appropriated to the architecture of the arch. Part I. treats of the "Round Arch, or Roman Architecture," and is subdivided into—1. Of the classical or transitional Roman; 2. Origin of Romanesque architecture; 3. Of Basilican architecture; 4. Of other early Christian architecture in Italy; 5. Of Byzantine architecture; 6. Its influence; 7. Of the Romanesque of Italy, or Lombard style; 8. Of the Romanesque of Germany; 9. Of Romanesque of Ireland; 10. Of the Early Romanesque of England, or Anglo-Saxon style; 11. Of the Romanesque of Southern France; 12. Of the

Romanesque of Northern France and England, or Norman style; 13. Of the influence of late architecture in the east; 14. General review of Romanesque architecture, which our author considers the perfection of round-arched construction; and, 15 and 16, of Arabian architecture.

The second part of Book II. relates to pointed arch or Gothic architecture, and contains—1. Definition and origin of Gothic architecture; 2. Of the transition from Romanesque to Gothic; 3. Of the subdivisions of Gothic; 4. Of the Early Gothic; 5. Of the late or Continuous Gothic; 6. Of the Gothic of Southern Europe; and 7. Of the decay of Gothic architecture, with which the work concludes. There are no engraved illustrations, with the exception of a very indifferent view, as frontispiece, of Yatton Church, Somerset, mentioned by us last week; and references to examples are few, the discussion of principles rather than the teaching of characteristics being the aim.

Our author considers that the ecclesiological and archaeological study of architecture has not tended to evolve a knowledge of its principles. "It is not archaeology in its right place, as something subordinate and ancillary," he says, "but archaeology exclusive, assuming, claiming a rank which does not belong to it, which is at this present moment the bane, not only of architecture, but of a yet nobler study, of history itself, as relating to the times and people most deeply interesting to us." With the "narrow, insular exclusiveness" with which the ecclesiological movement set out he has no sympathy, and he abuses "the narrowness and prejudice which still exist in many quarters."

"Which style is the best," says he, "is surely a matter of taste; I have myself a very strong opinion that, on the whole, Perpendicular is the best, and I have given my reasons for that belief; but I have endeavoured to do justice to every form of the art, and I flatter myself that I cannot be fairly charged with running down any style. But I am often sorry to see writers for whom I have a high respect going out of their way to express their dislike of a particular form of art, and appearing hardly capable of mentioning any one Perpendicular building without dragging in some uncalled-for expression of depreciation."

Mr. Freeman's tolerance, however, scarcely extends beyond mediæval art, notwithstanding that he elsewhere further says—

"As the last generation despised all architecture except that of the Greeks and Romans, and was content to abide in ignorance of what it despised; there is now a tendency at work to make the ecclesiastical architecture of the middle ages the centre of an equally confined view. That Gothic architecture is beyond all comparison the noblest effort of the art, that it is the only style to be adopted for modern structures in western Europe, the present writer would never dream for a moment of calling in question; but this surely does not preclude us from looking on the architecture of other nations as being at least as curious and valuable a study as other researches of the like kind."

Anything more than "looking" at it, however, he is not disposed to permit. Hear, for example, how he speaks of Italian architecture, concerning the beauties of which so many accomplished architects discoursed eloquently last week; and the moral condemnation seriously pronounced on those iniquitous individuals, Michaelangelo and poor Christopher

Wren. The "Confirmed Italian style," he maintains, "must be looked upon as simply detestable;"—it is, "both in a moral and an artistic view, thoroughly contemptible."

"And, above all, when we consider that this corrupted style was deliberately, by a formal purpose, in contempt of all ancient precedent and tradition, and in despite of every religious and national feeling, substituted for the most glorious forms that Christendom has ever beheld, it is impossible but that our admiration for the genius and skill of many of its authors must be altogether overbalanced by a feeling approaching to disgust at the utter perversion of their mighty powers. St. Peter's at Rome and St. Paul's in London might, a thousand years sooner, have commanded feelings of unmixt homage, and might have ranked side by side with St. Sophia and St. Mark's; but when we know that they were reared in contempt of Cologne, and Westminster, and St. Owen's, our feelings of admiration at the vast conception of the whole, the wonderful mechanical skill displayed, the real majesty and beauty which cannot be denied them, are lost in the shock sustained by our best ideal of a Christian temple, and in the moral condemnation which a high view of Christian art must of necessity pronounce upon their authors."

What will Mr. Cockerell say to this? and what, to the very violent philippic against his own Taylor and Randolph Buildings, at Oxford, in which Mr. Freeman has indulged at the close of his volume?

Whatever merit may be due to our author, he certainly may not lay the flattering unction to his soul that he has not "run down any style."

And here we would take the opportunity to remark, that we cannot agree with Mr. Sydney Smirke in his opinion, mentioned last week, that the style of Italy is in truth that of the Greeks; that Italian architecture, being only a species of a genus, should not be put forward as a distinct style. To give up this distinction would be, as it seems to us, to retrograde in architectural science: the detection and classification of minuter differences is the course of progress. Moreover, the general use of the arch, and the force of the requirements of the time, rendered the architecture of Italy so different from that of Greece, that it is not a minute but an obvious and important variety which requires to be distinguished as the Italian style. Every succeeding form of the art may be traced up to the Greek model; but this is not a sufficient reason for gulping them all under one title.

Mr. Freeman pays just tribute to the beauty of Greek architecture, in Greece. The introduction to this portion of his subject is one of the most eloquently written portions of the book. "Greece is fallen, but her possessions have become the inheritance of the world throughout all time. And this is especially true of her admirable architecture. As it was in Greece that the art first obtained perfection, it was in Greece, too, that it first acquired a character worthy to be transmitted to other lands."

The "classical Roman style" our author thinks as contemptible as the revived Italian:—"It is a mere transition—an inconsistent jumble of contrary principles."

In the Romanesque of various countries, which grew up on its ruins, he finds his first and exceeding great consolation. After examining the Romanesque works, he says:—

"At this point, having traced ecclesiastical architecture to its first stage of perfection, the

\* "A History of Architecture." By Edward A. Freeman, M.A., late Fellow of Trinity College, Oxford. London: Masters, 1849.



first point at which it became the complete development of an idea artistic and moral, we may not inaptly pause to consider the moral teaching of this its first and magnificent creation, as compared with the lessons taught by it in other days, and by means of a yet more glorious style. I have all along endeavoured to show that Romanesque is as truly, and in as strict a sense, a Christian architecture as Gothic itself; the difference being that they are respectively the language of the Church at distinct periods, and under distinct circumstances. The one is a type of the domination of the mighty people whose name it bears, the other the pure, the glorious, the peculiar heritage of our northern race.\*

It will be observed that Mr. Freeman retains (as we do) the term Gothic, as the most appropriate title that can be given to the style.

"Christian" architecture is incorrect, as involving the position that Bonn and Peterborough are not Christian buildings; it is besides, if it were to be made a general term, not a little affected and pedantic. And the term "Pointed," now frequently used, does not describe either the history, or the meaning, or the principles of the style, but simply certain of its details; besides, it requires Romanesque to be called, for consistency's sake, the "Round" style, which has been defended in theory,\* but which no one yet has ventured upon in practice. But Gothic does most certainly express better than any other name the fact that the style so called was, in a stricter sense than any other, the peculiar heritage of the Teutonic race, that it came to perfection among them alone, never flourishing among the Romance nations of the south; and that it is the style of feudal and ecclesiastical Europe, of the days when the Gothic or Teutonic spirit animated all western Christendom."

The examination into the artistic history of Gothic architecture is acute and philosophical; and the book, as a whole, is an important and interesting contribution to architectural literature.

#### ON THE LIFE, THE GENIUS, AND THE WORKS OF GIACOMO BAROZZI DA VIGNOLA.†

OF the great Italian architects of the sixteenth century, I doubt whether there is one to whose works and instruction we are more indebted than to him who forms the subject of the present paper, Giacomo Barozzi da Vignola. We have all probably our different favourites among these great masters,—one preferring the grandeur and solidity of the San Galli,—another, the refined elegance of Peruzzi,—a third, the harmony and simplicity of Palladio; but for a happy combination of exquisite grace with originality and purity of design, I consider Vignola as deserving the palm.

In France the merits of Vignola have always been justly appreciated. The architect is there taught from the commencement of his studies to revere him as his law-giver; and his name has given the title to several of the French elementary works. They have their "Vignole des Architectes," "Le Vignole des Ouvriers," and "Le Vignole des Propriétaires." They have produced "Le Vignole in fol." and "Le Vignole de poche;" in fact, for pure Italian architecture, this great master is looked up to as their standard; and I believe I am correct in attributing the great excellence of modern French architects to the fortunate selection they have made of Vignola as their chief guide and instructor.

Of our own countrymen, Sir William Chambers has, perhaps, been the most forward in doing justice to the merits of Barozzi. In Sir William's admirable treatise he constantly refers to the writings and executed works of his great Italian prototype, and in his Five Orders he has drawn more largely from Vignola than from either Scamozzi, Serlio, or Palladio.

Mr. Donaldson has also done justice to the

genius of Vignola in the following passage, from his instructive work on doorways:—"We are not sufficiently acquainted in this country with the powers of Vignola's vigorous mind, which is more to be regretted, as all his works evince a profound knowledge of the resources of his art, and a taste of the most cultivated and refined nature. Grace is the predominating feature in all his buildings, not one of which but is sufficient to establish the reputation of any man."

Before I proceed to discuss the merits of Vignola as an architect, I will first slightly glance at the history of his life, and describe some of his principal works. Of the former, I have little to add to what is contained in his memoir by Vincenzo Danti, as well as in Milizia's "Memorie degli Architetti;" and also in the accounts prefixed to the editions of his works, well known, no doubt, to those present. And although I can offer no such amusing scenes, nor stirring events, as are to be found in the life of a Benvenuto Cellini, still the career of Vignola was not without its shadows: occasionally basking in the sunshine of royal favour and pontifical patronage, there were times when he despaired of success, and when he found it necessary to change the intent and nature of his studies.

Vignola was born on the 1st of October, 1507; his father, Clemente Barozzi, was of a noble family, and a native of Milan; his mother was a German lady. The civil wars of that period obliged Clemente to leave Milan, and he took refuge in the small town of Vignola, in the Modenese states, and Giacomo being born there, was, according to the custom of those days, surnamed after the place of his birth.

Clemente Barozzi died during the infancy of Giacomo, who, as he grew up, evinced some talent and inclination for drawing, and was therefore advised to proceed to Bologna to study the art of painting and design. He does not, however, appear to have made the progress in his pursuits that he desired; he therefore took the resolution of changing them for perspective and architecture, and in these his more congenial studies, he soon arrived at that proficiency which his natural genius and constant application enabled him to attain. Francesco Guicciardini, at that time Governor of Bologna, took him under his patronage; but the youthful Vignola, perceiving that a thorough knowledge of architecture not merely consisted in making designs, or studying the works of Vitruvius, determined to proceed to Rome, and there to measure and study those glorious remains of ancient magnificence for which he had so profound a veneration.

He at first obtained employment by making drawings for Melighini, of Ferrara, the same unfortunate wight, who, it is said, served his Holiness in capacity of groom, and who, upon the occasion of the competition for the "Cornicione" of the Farnese Palace, was called by Antonio Sangallo "that mountebank of an architect." The necessity of procuring the means of subsistence obliged Vignola occasionally to resort to painting small pictures for sale; but this precarious mode of life was so distasteful to him, that upon the formation of an Academy of Architecture in Rome, by Monsignore Marcello Cervini (afterwards elevated to the Papal chair) he gave up painting and devoted himself entirely to the study of architecture, drawing and measuring nearly all the then existing remains for the use of the Academy, and to the entire satisfaction of its members.

About the year 1537, Vignola left Rome in company with Primaticcio, the painter, who took him with him to France, and presented him to Francis the First, to whose service he became attached as professor of design. He made several drawings of ancient monuments for that great monarch, and various designs, the execution of which was prevented by the wars and troubles of that period. Some of his designs in perspective are said, however, to have been executed upon the walls of the Palace at Fontainebleau. Vignola appears also to have assisted in casting in metal several statues from the antique for that palace, but Francis the First, having other occupations and demands upon his time and treasure, was obliged to withdraw his patronage from the fine arts, and our architect therefore returned to Bologna at the invitation of Count Filippo Pepoli, Presi-

dent of St. Petronio, and he appears to have been engaged up to the year 1550, in making designs for that establishment.

Competition designs in the sixteenth century do not appear to have been managed with more satisfaction to the parties engaged than in the nineteenth; and Vignola is said to have been troubled with many dissatisfied rivals, when, Giulio Romano and Christoforo Lombardi being called in to advise (much in the same way as in our own times) upon the designs sent in for the restoration of St. Petronio, Vignola's was adjudged by these two great artists to be the most meritorious. This account, however, does not quite agree with Giorgio Vassari's statement, in his life of Giulio Romano, from which it would appear that Giulio Romano himself made a design for the façade, which was much admired by the Bolognese. Palladio made four designs, and Baldassari Peruzzi and Alessi were among the competitors. The affair appears to have created a great sensation in the architectural circles throughout Italy at that period. These designs are still preserved in the Reverenda Fabrica, at Bologna (adjoining St. Petronio); they were seen by Mr. Falkener and Mr. Newman last year. Vignola's design is of a Gothic character, in accordance with the other parts of the building; it does not appear so meritorious as Giulio Romano and Lombardi adjudged it to have been.

We gather from Milizia that it was the custom at that time to consult the chief architects of the day upon any questionable point of design or practice, for in a dispute between Bassi and Tibaldi, upon some matter connected with the works in progress in Milan cathedral, Bassi applied for the advice of Palladio, Vignola, Vassari, and Bertani; and Milizia remarks that the answer of Vignola, as respected the Baptistry, was well worthy of being recorded. Tibaldi, in order to support his ill-proportioned intercolumniations, proposed to introduce iron chains. Vignola remarked, "Che le fabbriche non si hanno da sostenere colle stringhe,"—"a golden sentence," as is well observed by the ingenious and learned author of the "Notitia."

Vignola appears about this period to have been employed upon a palace at Minerbio, for the Conte Alemanno Isolani, and upon a house for Achille Bocchi, in Bologna; upon the Façade dei Banchi in that city; and upon the Canal di Naviglio, a work of engineering, which architects then undertook as a legitimate part of their profession.

My friends, Mr. Edward Falkener and Mr. Newman (both of whom have lately returned from Italy with rich stores of architectural study), were induced, from finding the Palace at Minerbio described as a great work of Vignola's, to make a detour of some 20 miles on purpose to see it, and we may judge of their disappointment upon finding the only work of Vignola's now existing at Minerbio to consist of a columbajo of an octagon form, about 25 feet in diameter and 70 in height. No traces of the palace could be found, but if that building was in proportion, in extent of accommodation, to the columbajo, which would contain 13,000 pigeons, it must have been a building of no little magnitude.

Upon a second visit to Rome, Vignola was introduced by Giorgio Vassari to the Pope Julius III., who, when legate at Bologna, was acquainted with Barozzi. His Holiness appointed him his architect, giving him the direction of conducting the Acqua di Trevi, and commanding him to make designs for his celebrated residence the "Villa Papa Giulio;" he was also engaged upon the small neighbouring church of St. Andrea a Ponte Molle.

The Cardinal Alessandro Farnese was a most influential patron of Vignola's. He employed him upon that portion of the Farnese Palace known as the Caracci gallery, and his hand may be traced in other parts of this celebrated building. He was engaged at the Cancellaria; and he also designed for the cardinal the exquisite gateway to the Orti Farnesiani in the Campo Vaccino. The greatest work, however, upon which this powerful prelate employed him was that superb specimen of architecture, the palace of Caprarola.

At the decease of Michaelangelo, in 1564, Vignola was appointed architect to St. Peter's, and to his refined taste we are indebted for the two beautiful lateral cupolas of that building.

\* Ecclesiologist, V. 229, note.

† Read at the Meeting of the Institute of Architects, February 4.



The church of the Gesù in Rome was also a commission from the Cardinal Alessandro Farnese; the foundations were laid in 1568, but the works were only carried up to the height of the cornice by Vignola. The building was completed under the direction of Giacomo della Porta.

The great ducal palace at Piacenza was designed by Vignola, but completed by his son Giacinto. A chapel in the church of San Francesco in Perugia, the Capella Ricci in Santa Caterina de' Funari at Rome, the church of Santa Anna dei Palafrenieri, the Oratorio di San Marcello, and the tomb of the Cardinal Ranuccio Farnese in San Giovanni Laterano, were among the works of Vignola about this period; and he was also employed upon several public and private edifices in various parts of Italy, among which were the Chiesa della Terra di Manzano, that of St. Oreste (Mount Soracte), and Santa Maria degli Angeli at Assisi.

The foundations of the palace of the Escorial were laid in 1563, when the Baron Martiniano being at the court of Philip the Second, and being much esteemed by that monarch as of acknowledged taste in the arts, he was consulted in respect of this important building, and commissioned to return to Italy to advise with the most celebrated architects of the day, —Galeazzo Alessi at Genoa, Pellegrini Tibaldi at Milan, Palladio at Venice, and the Academy of Design at Florence. The Grand Duke Cosmo di Medici also ordered a design to be made by Vicenzio Danti. No less than twenty-two designs from different architects were collected on this occasion, but it is stated that none were so well received by the King of Spain and Martiniano as that by Vignola, who, having had all the designs sent to him for his inspection and judgment, selected the best parts of each, and thus dressed up a description of Olla Podrida design for his most Catholic Majesty. This at first sight does not appear to have been a very creditable proceeding on the part of our architect, but at this distance of time it would hardly be just to venture a censure without having all the circumstances of the case before us; and as the character of Vignola for honour and integrity has never been impeached, it is only fair to presume that he did nothing unworthy of it in this transaction. Philip invited Vignola to proceed to Spain to superintend the execution of his design, but finding himself advancing in years, and being much occupied with his professional duties (more particularly with those pertaining to St. Peter's), he prudently declined the royal invitation, and determined upon continuing in his favourite Rome. The Escorial, according to Milizia, was afterwards erected by Giovanni Battista di Toledo.

In the year 1573 Vignola was invited by Pope Gregory XIII. to proceed to the city of Castello to examine into a disputed question of boundary between the Tuscan and Papal States, and although suffering greatly from indisposition at the time, he obeyed the Pope's commands, and fulfilled his commission with care and great judgment. Upon recovering his health he immediately returned to Rome, and sought audience of the Pope to render him an account of the successful performance of his commission: he remained an hour discoursing with his Holiness upon the subject, and upon the state of the progress of several buildings from his designs, and received permission to proceed on the following day to Caprarola; but during the night he was attacked with fever, which terminated in his death after six days' continuance.

Vignola died on the 7th July, 1573, at the age of 66: he had requested to be buried in a private manner, but his son Giacinto was obliged to concede to the wish of his friends and admirers, and he was interred with great pomp in the Pantheon, all the members of the academy of St. Luke attending the ceremony!

Ignazio Danti (to whom we are indebted for a memoir of the life of Barozzi) makes most honourable mention of his noble and generous disposition. His constant desire was not to be burdened with the cares of superfluity, or the miseries of want; his numerous charities prevented the former, and his talents and the extensive patronage he enjoyed rendered him exempt from the latter. His life was most virtuous; his love of truth proverbial; his manner cheerful and engaging; his accom-

plishments refined; he died poor, leaving no other inheritance to his son Hyacinth (observes Quatremere de Quincy) "than the example of his virtues and the reputation of his name!"

Milizia states that Giacomo della Porta studied under Vignola, and Bonnani styles him as "discipulus ejus:" he succeeded him as architect to St. Peter's, and also designed and executed the several churches and other important works in Rome.

I regret that I am unable to give the date when Vignola produced his celebrated Treatise upon Architecture. Daviler and Milizia both state that it was towards the latter end of his life, and this is in some measure confirmed by Vignola himself, who, in the following passage from his modest and unpretending preface, says, "that having for many years practised as an architect in various parts, having studied the writings of several authors upon architecture, and having compared them together and with the works of antiquity then still remaining, he was desirous of establishing a rule upon which he might rely with security, and which might, upon the whole, or in part, please the judicious."

Of a treatise so well known to architects it will be unnecessary for me to offer any description, it being sufficient to observe that its merits have now been tested for more than three centuries; that of the parallels which have been made of the orders with those of such powerful rivals as Serlio, Scamozzi, and Palladio, I think the balance will be found in Vignola's favour, notwithstanding the opinion of so great a critic as Milizia, who places the great architects of the sixteenth century in the following gradation.

"For knowledge and exquisite taste possessed by each in architecture, it appears that the first place would belong to Palladio! on his right hand would be Vignola, Buonarroti, Sansovino, and Vasari, and on the other Peruzzi, San Michele, Giulio Romano and Serlio."

Vignola's Treatise upon Perspective was not published till after his death: his son Giacinto placed it in the hands of Ignazio Danti, a Dominican friar and mathematician of Bologna. Danti has well fulfilled his task of compilation, and has produced a work upon a subject which was more carefully studied by the old Italian architects than by their successors. Both Vitruvius and Peruzzi, as well as Vignola, recommended its study as one of the means towards arriving at perfection in the art. The words of Vignola are "La scienza della prospettiva gli aveva aperto l'ingegno per l'arte di fabbricare," and I would here venture a remark to students upon the great importance of a sound knowledge of perspective for the proper study and practice of their profession. It would not be difficult to point out in several important buildings instances of failure of architectural effect, arising from the designs having been merely studied geometrically.\*

SAMUEL ANGELL.

#### THE MEDAL DRAWINGS AT THE INSTITUTE OF ARCHITECTS.

HAVING seen the designs submitted to the Institute in competition for the Soane Medalion, we are disposed to regret, with some who have addressed us on the subject, that the council should have treated them so stringently.

The set marked "Faith, Hope, and Charity," selected by them as nearest approaching the standard to which they conceive the Institute should refer the designs submitted on this occasion, are drawn to a smaller scale than that prescribed in the printed instructions, and the drawings are coloured, instead of being tinted in sepia or India ink.

Insisting, as we ever do, on the necessity of committees judging designs submitted to them with strict reference to the instructions given, we are compelled to regard this design as out of the pale.

There are, however, two other sets, apparently submitted by one hand, the first marked *Quies Laudabamus Solum*, and the other *Vides Roma Faciam*, which seem to us to deserve more consideration than they have received. They are evidently by one who has well studied the works of Wren. Without

\* To be continued.

displaying much inventive genius, they show skill in re-combination, and some knowledge of construction, considerable artistic power, and such an amount of industry as is itself deserving of reward.

We venture to express a hope that the council, having eased their conscience by setting forth their views as to the degree of merit that ought to be shown to entitle a competitor to the medal (and to which we do not wish to offer dissent), the general body will, at the meeting on Monday next, empower the council to present the medallion to the author of the two designs we have referred to.

#### ST. MARTIN'S MUSIC HALL.

A PORTION of Mr. Hullah's new Music Hall was opened to the public on Monday night last. The plot of ground on which it is erected consists of a parallelogram of 149 feet in length and 61 feet in width, the north side abutting on Wilson-street (leading from Endell-street to Drury-lane), and the east side on Charles-street (Long Acre); this plot being connected, at the south-west corner, with Long Acre, by another, 44 feet in length and 22 feet in width.

When completed, the concert-hall will be 121 feet long, 55 feet wide, and 40 feet high; the length being rather more than double the width, and the height a third of the length. It is to afford accommodation for 3,000 persons. At the west end of the hall will be two ante-rooms, entered by two staircases; the one leading from Long Acre, the other from Wilson-street. A third entrance, at the east end, will be connected with a staircase leading from Charles-street. On the north and south sides, and at the west end of the hall, will be erected galleries.

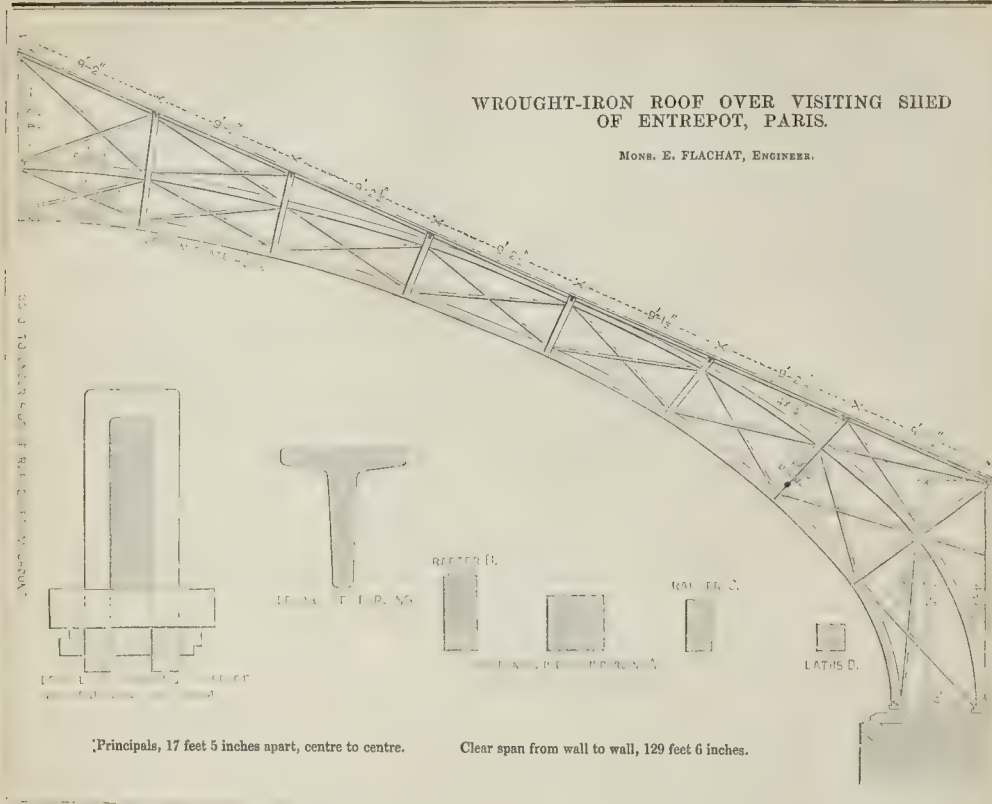
The part completed is next Charles-street, with a temporary entrance through No. 89, Long-acre. It is 87 feet long, 55 feet wide, and 40 feet high to the boarded ceiling, or inner roof, which is flat in the centre and sloped at the sides; it has arched ribs next the walls with ornamented spandrells, and is divided into panels by moulded ribs. The walls are perfectly plain, and the windows on either side, by which it is lighted, are too much like those of a factory; still the dimensions of the apartment and the construction of the roof give it a certain air of nobleness which will compensate for some defects. The hall is lighted at night by suspended gas chandeliers.

On the ground floor there will be a lecture-room, 51 feet long, 40 feet wide, and 26 feet high, calculated to accommodate 500 persons, besides class-rooms.

We must mention that the principal feature of the concert with which the new hall was opened was a festival anthem, composed by Mr. Henry Leslie, son of Mr. John Leslie, one of the late Commissioners of Sewers, and inventor of several improvements in lighting and ventilation. The anthem is a masterly composition, indicating the possession of powers of very high order,—and suffices, with other works previously submitted to public ordeal, to place Mr. Leslie in the foremost rank of those on whom the reputation which England has to achieve in musical science depends.

BATHS AND WASHHOUSES, ST. MARTIN'S-IN-THE-FIELDS.—On Friday in last week a meeting was held in the vestry-room of this parish, to receive the report of the Commissioners of Baths and Washhouses; the Rev. Mr. Mackenzie in the chair.—From the report it appeared that for the year ending 23rd January last, the number of baths made use of was 196,310, and the money received 2,945*l.* 16*s.* 11*d.* Increased demands on the wells in Trafalgar-square had checked the supply of water and of baths. The commissioners estimated the income from baths for the current year at 3,500*l.*, and from the laundries at 500*l.* The annual charges were estimated at 2,000*l.*, and the repayment of loan and interest at 5 per cent., at 2,030*l.* The engineer's report gave a detailed statement of an expenditure of 16,775*l.* The report was agreed to. It was then resolved, "That the vestry sanction the borrowing, on mortgage of the poor-rates, an additional sum not exceeding 5,000*l.*, in order to carry out the Act 9th and 10th Victoria, cap. 74."





#### THE ROOF OVER THE VISITING SHED OF THE ENTREPOT DES DOUANES IN PARIS.

FRANCE, from its position on the Atlantic coast, is often used for the purpose of transit for colonial produce by such countries as Switzerland, Baden, and Bavaria. To develop this traffic the Government have granted facilities, by allowing the goods to be warehoused without previous payment of the duties, until the said goods are entered for consumption; or, in the case of their being purchased for a foreign market, they are allowed to traverse the country free of duty, if secured by a leaden seal affixed by the custom-house officers. The warehouses in which such goods are stored are called *entrepôts*, or bonding warehouses; they are of two sorts, the *entrepôt réel* and the *entrepôt fictif*.

The *entrepôts réels* are built by, and at the expense of, the municipalities of the towns which have the privilege. The municipalities are responsible to the Government for the payment of the duties; they name and pay the warehousemen, and they receive the rents charged upon the goods, according to a regular tariff, debated in the municipal council, and approved by the Minister of the Interior: the said sums received for rents being applied to municipal purposes. The duties levied are calculated upon the outgoing weights or quantities.

The *entrepôts fictifs* are private warehouses, belonging to individuals, who enter into security to the Government for the payment of the amount of duties calculated upon the ingoing weights or quantities,—all loss from theft, waste, drying, or evaporation being at the risk of the *entreposeur*. The custom-house authorities have one key of the warehouse, the proprietor another; nothing is allowed to be withdrawn unless the custom-house has been informed, and an agent be present. In the *entrepôts réels*, the rents are higher, but there is less risk; in the *entrepôts fictifs*, the goods are more under the personal inspection of the proprietor.

The *entrepôt* of Paris, of which the roof

before us forms a part, is an *entrepôt réel*. It contains a series of magazines for such goods as are intended to station there any length of time, and two large sheds for packages deposited *in transitu*, with a courtyard between, where such goods as merely pass through without stopping, or such as are entered for immediate consumption, are visited. This courtyard was originally uncovered, but such inconvenience arose from the exposure of the goods, that the iron roof in question was erected.

It must be observed, that the side walls are very thin. The roofs of the sheds had no bearing in them, nor did they serve for any other purpose than to inclose the said sheds. The roof was therefore obliged to be constructed without any support from the walls.

The roof, of 129 feet 6 inches span, consists, as in the drawing, of a series of framed wrought-iron elliptical girders, the bottom web of which is in two pieces, with two collars, as shown in detail, to clip the lower part well up to the other, thus forming a reversed T; the upper part is without flange. These elliptical bars are kept in place by cross pieces, and are connected with the principal rafters by flat ties.

The purlins are of T iron; they are supported by arched bars in the middle of their bearing, the said bars forming also cross braces to resist the lateral movement of the roof.

On the back of the principal rafters, and over the purlins, the stiffening pieces A are placed, to take, firstly, the intermediate rafters B, of an extra depth and scantling, which are notched down so as to range flush on top, and are about 4 feet 4½ inches apart; and they also receive the common rafters C, which are 1 foot 5½ inches nearly from centre to centre. Between these rafters laths D are let in (by notched-down), so as to be flat with the rafters; the laths are about 19½ inches apart.

The whole is covered with galvanized iron. Each rib weighs about 8 tons 11½ cwt; there are in the whole shed about 1,550 yards superficial. The price of wrought-iron is, in Paris, about 6d. per lb. This roof cost, per yard, 4l. 12s. 10d.

It was executed in the year 1846, we believe.

There are skylights all down the centre, and at intervals on the sides between the second and third purlins from the bottom.

#### PROFESSOR COCKERELL'S LECTURES ON ARCHITECTURE, AT THE ROYAL ACADEMY.

In his fourth lecture, January 24, Professor Cockerell reminded the students that the improvement they so ardently desired depended mainly on themselves, and rather on the methods of their own application, their diligence, susceptibility, and ingenious attention to the hints, precepts, and examples that were presented to them, than from any external aid and advantages, however zealously administered by the professors. Their notes should be carefully stored, their impressions recorded; the album should be their magazine and the history of their studious lives: ingenious admiration, according to Plato, was the very principle of philosophy. Faith, humility, and charity were no less essential in the art of learning than in the conduct of life, and deplorable was the loss (to all of us) of sound instruction, from self-sufficiency and superciliousness. At the same time the student should think for himself also, and it often happens that early intuitive impressions may be trusted rather than those which fashion or opinion dictates; and the fact seems hardly credible, that every twenty years will witness (and by universal consent) a new fashion, even in so grave a matter of architecture. How much, then, should fashion be distrusted, the impressions of the natural and unsophisticated mind be maintained, and the true principles of the art be cultivated, sought, and respected!

All opportunities of travel in this great metropolis and in this great country, should be seized, so that the habit of observation, and an original store of our own impressions, may be made as early as can be; whatever notes we make should be complete. It was the wise injunction of Leonardo da Vinci, to finish



whatever we begin, and not to rely on superficial observation. Great were the fruits of these habits, and future eminence was founded on the difference of habits in man and man.

In his last lecture, on the great subject of proportion, the professor had endeavoured to carry out the "analogy" of the Greeks according to Vitruvius, by further evidence than he had afforded; and by comparisons of the monkey with the man, and the donkey with the horse, he had attempted to show that beauty of proportion was attained by inequalities (commensurate or otherwise) rather than by equalities; their variety of quantities was expressed by the Greek word "eurythmia"—a term seemingly taken from the art of writing, in which the order of rhythm was all powerful, and which art also prescribed the dactyl and spondee as the measure of sonorous versification.

This reflection led to the refinement and diminution of the ornamental portions, and the extension of the plain, or breadths, in all good works. The head was one-eighth or one-ninth in the man, while in the monkey it was one-sixth or one-fifth; so the proportion of the hands and feet to the arms and legs.

The same observation might be extended to the expressive human head; the child, the barbarian, and the tyro will give especial interest and magnitude to the ornaments,—the eyes, the nose, and the mouth, will be large and striking,—but the accomplished pencil will diminish these in favour of a new element of breadth, and consequent strength, and magnitude, and energy; so in architecture, the former will lay especial stress on the florid capital, the ornamental base; the moulds of the entablature will be large and excessive compared with the plain surface and the broad unornamental parts: the examples from the Acropolis of Athens vindicated this principle conclusively, especially the comparison of the Doric profiles of Greece and Rome, the small ovolo of the cornice, the excessive corona, the solid abacus of the capital, the parabolic echinus, the delicate annulets floating into the shaft, in the one,—the equalities of the other, the echinus struck with the compasses, the grossness of the annulets, and their abrupt union with the shaft.

The moulded and ornamental, used with so much reserve by the Greek, had engrossed the less refined Roman architect. So it was that the vulgar mind always sought the ornamental. Shakespeare had truly said

"The world is still deceived by ornament."

Connected with this part of the subject was profile,—the whole merit of which consisted in the apt contrast of the round, the square, and the hollow, and their combinations in just quantities—the nice opposition of the rectangular and curvilinear surfaces. Here, again, the analogy of Vitruvius holds good. In the profile of the human face (in the Grecian model), observe the slightly undulated forehead; whence the nose, in vigorous straightness, ending almost in an angle, floats into the turned lip by the cyma reversa, ending in an edge, from which the lips (the astragals of different magnitude, and in different planes) are finely relieved by the cavetto to the chin, and this, in its parabolic curvature, presents to the neck altogether the finest varieties, oppositions, and quantities that the sense of beauty can conceive.

Again, in the entire figure, the fleshy or muscular curvature of the limbs is finely relieved by the points and angles of osteology, so that nothing can be devised more conformable to the principle which we illustrate, and desire to see in every well adjusted architectural profile.

These principles apply to all forms of architecture, and may be traced in all the beautiful productions of nature—animal or vegetable.

From the consideration of facts we proceed to their combinations in wholes, where we can do no better, in the columnar Greek architecture, than follow the models which the experience of the ancient world enabled Vitruvius to lay down with so much precision.

On this part of orthographical proportion, it was important to consider well the modulus on which our design should be constructed, and to carry it into every part—doors, windows, &c., harmoniously,—the wide spread or the tall, and its intermediates. The modulus of a square like the Tuscan, quadrate, spacious,

latitudinal; the just parallelogram of the Ionic; or the elongated and tall Corinthian modulus and its pycnostyle arrangement; or finally, the Gothic excess of this last modulus in the lancet arch,—for example, the ample and latitudinal modulus given by the bridge, through which (when under its spreading vault) we behold the landscape beyond with so much surprise and greatness of effect,—or the Tuscan areostyle, conveying always (and signally in St. Paul's, Covent Garden), an extraordinary power and energy,—the ordinary modulus of sesquialteral proportion used by the generality of masters,—or that of the attenuated and vertical Gothic.

On these various moduli, Blondel has superadded to the usual precepts of Vitruvius, a valuable chapter on the proportions of apertures, doors, gates, windows, archways, very material to consider: almost every practitioner tries his own habitual modulus, his broad or narrow gauge, but it is plain that the several varieties cited are capable of their especial application; and the understanding of this peculiar case and situation is an essential qualification of the scientific architect. Nottingham Castle (an unpublished work by a great hand) is a fine example of this quadrate modulus, and of the great dignity which may be given thereby to a building of very limited elevation. Sir Robert Taylor's garden-front of the Bank was another good example.

It would be useful to the students to collect examples of the various masters, with reference to the modulus they employed, and to consider their application to actual dimensions—the principle of greatness might be so understood and acquired—that principle so essential to the architect, who should know how to display in his works (even the least considerable), that dignity and largeness of soul which we admired in moral greatness (rarely indeed met with in mankind), but which affects us so powerfully with the sentiments of grandeur, elevation, and awe.

The deficiencies of this intelligence subjected our works to become toys and heaps only of littleness. All his life the professor had aspired to this faculty of greatness, but had never attained it in any degree, he said, save only in the *scrapper* which he had placed at the north door of St. Paul's Cathedral.

#### THE VIRGINIAN MONUMENT TO WASHINGTON.

THE State of Virginia has appropriated 100,000 dollars for a monument to Washington, to be placed at Richmond, and opened a competition among artists for the work. The plans and models were to be sent on January 8.

Two designs are more particularly noticed in the American papers now before us, one by Mr. Snell, an English architect, who now resides at Boston, and the other by Mr. Crawford, sculptor, whose previous works are esteemed in America.

The model of Mr. Crawford's design is, of course, sculptural more than architectural. It consists of an equestrian statue of Washington in bronze, surrounded by other bronze statues, and standing on a platform, presenting twelve fronts, affording a promenade round the inscriptions and statues. A flight of steps conduces to this platform. Out of it rises a base, having for its ground floor the form of a star of six points, ornamented with mouldings, the upper carved as a laurel wreath.

Out of the star base rises a structure of an octagonal form, the lower portion of which is devoted to inscriptions. The statues surrounding that of Washington are six in number, and are intended to represent the most eminent men of Virginia, or of the whole country, during the revolutionary period. The costume of 1776 is followed.

According to the design of the artist, the statues at the base would be 9 feet in height, and the group of Washington on horseback 15 feet. The entire height of the monument would be between 60 and 60 feet, and its diameter at the platform 50 feet. Gilding is to be introduced upon the ornaments. The platform and structure on it are to be of marble or granite, or a combination of both.

The Boston *Transcript* speaks very courteously of Mr. Snell, as well as highly of his design, which, unlike that of Mr. Crawford, is

naturally architectural, more than sculptural, though it also contemplates a statue of Washington, and other accessory statues. It is a structure rising out of a platform, and in general outline may remind the beholder of the monument to Sir Walter Scott at Edinburgh.

The chief feature, as seen at a distance, is the open temple or chapel, with rich roof and lofty spire. Within is a colossal statue of Washington, on a hexagonal pedestal, sculptured with alto-reliefs of white marble, and on a platform paved with encaustic tiles, representing the arms of the States, and other national emblems. The subdued colour of these, it is supposed, will give effect to the purity of the marble. A groined vault rises above the statue, supported on six massive buttressed piers of granite or sandstone. On blocks outside these are six bronze statues, intended to represent eminent Virginians. In the ornaments metal is extensively introduced, sometimes gilded by galvanizing. Above all rises a roof and spire framed of wrought iron, and covered with sheets of zinc and gilded iron. In the spire there are three tiers of allegorical statues of cast metal, gilded. The crowning finial represents a star supported by a cross.

"Mr. Snell's design," adds the *Transcript*, "exhibits taste and knowledge. Whatever may be its reception at Richmond, it cannot fail to commend its author to all among us interested in art, as he has already commended himself by his personal character and genial manners to all who have had the pleasure of becoming acquainted with him."

#### BRITISH ARCHÆOLOGICAL ASSOCIATION.

At a public meeting on February 8th, Mr. Yewd read a paper "On the Mediæval and Arabic (so called) Numerals." This paper was illustrated by diagrams, showing at one view the various forms of characters used in the middle ages, arranged according to their dates; and the writer entered into a lengthened comparison of these characters with those used in the Arabic, Sanscrit, Hindoostanee, and ancient Egyptian languages.

Mr. Lynch communicated a description of remains of the ancient church of the Knights Templars and other early buildings situate behind the house of Mr. Charles Griffith, near *Middle-row, Holborn*. He also exhibited one of five antique green glass flasks, found in excavating on the site.

Dr. A. Gund exhibited a drawing of a doorway in the south wall of Little Langford Church, Wilts, now built up. Amongst the stones used for this purpose is some curious Saxon (?) sculpture, representing a boar hunt; above this a bishop in the act of giving the benediction, and a curious representation of birds seated on a tree or anchor; attached to this sculpture is a curious legend, believed in the neighbourhood, concerning Gravelly Wood, which is situate near this church.—Messrs. Chaffers and Burkill exhibited specimens of a peculiar description of needlework, which prevailed during a limited period (commencement of seventeenth century), and not mentioned by Lady Wilton, or in other works on the subject.

Mr. Egan read an elaborate paper "On the Antiquity and primitive Form of our National Instrument the Harp."

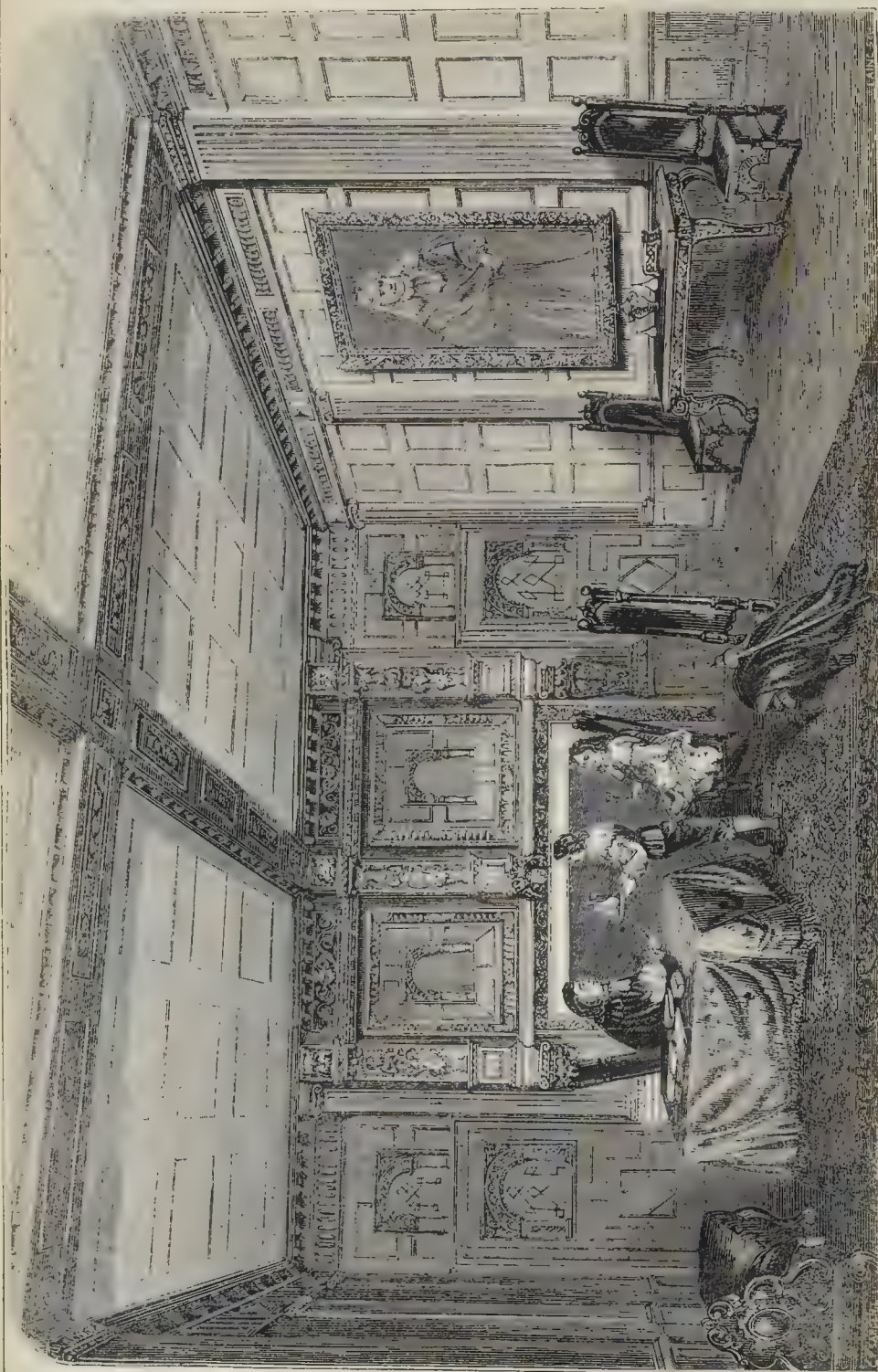
Mr. Planché made some valuable remarks upon metal heraldic badges, which he supposed formed part of the furniture of horse harness.

Mr. Jessop communicated an account of a Greek altar in his possession, procured from the ruins of a Temple of Minerva at Athens. It is dedicated to Hercules.

#### ASYLUM FOR THE BLIND, BIRMINGHAM.

—Sixteen sets of drawings were sent in competition for this building. The committee, after examination, have declared Messrs. Coe and Goodwin entitled to the first premium (301.); and Mr. P. E. Masey to the second (101.). The style of the two designs is said to be Elizabethan. The instructions given were not to exceed 4,000*l.* for the house, 500*l.* for the workshops and colonnades, and 500*l.* for a music-room.





INTERIOR OF HOUSE IN THE BUTTER MARKET, IPSWICH.—A.D. 1566.



## INTERIOR OF HOUSE IN THE BUTTER MARKET, IPSWICH.

THE very singular mansion, of which an illustration is here presented, is situated in a street in Ipswich, formerly used as, and still named, the Butter-market.

The building is ascertained to have been erected by one Geo. Copping, a builder, whose initials exist over the doorway, and are also to be seen, in conjunction with those of his wife Mary, over the mantelpiece of the present drawing-room, with the date, 1567, over a door next the mantelpiece. In 1573 the house was sold to R. Sparrowe (son and heir of John Sparrowe, of Somersham), one of the Portmen of Ipswich. It has always been occupied since by one of his descendants down to the present owner and occupier, John Eddowes Sparrowe, a respected solicitor. The family vault, which is in the neighbouring church of St. Lawrence, is, in the quaint humour of former times, inscribed *Nidus passerum*.

The façade extends to 70 feet; and the basement presents a series of cinq-cento caryatides, with festooned capitals of fruit and flowers, between which, except in the door spaces, windows and worked panels range alternately. As usual in old timber-framed houses, the upper floor projects, and has four bays, each of which is adorned at its base with a rude figure and emblems, representing, respectively, Europe, Asia, Africa, and America. Cinq-cento pilasters, coupled by festoons, with devices between their bases, at first existed in the three centre spaces between the bows; but at a later period, the middle space has been ornamented with the arms of Charles II., whose memory is linked with the house in what would, at first view, seem a somewhat legendary style. There is but one plaster between the eastern window and that end of the front, but towards the west there are again two pilasters, connected by groups of birds at top and bottom. A bold cornice, so deep as to afford a safe promenade, extends along the front and returns on the west end; and the roof is broken by four gabled attic windows, one over each bow, enriched with cupids in various attitudes. No chimneys are visible. The west end is ornamented with an uncouth figure of Atlas supporting the globe, just below which is a rude representation of the classic scene of Titurus reclining under the beech, and Melibœus politely approaching, hat in one hand and staff in the other, followed by his sheep. Above is a false attic window, with a representation of St. George and the Dragon.

"The interior of this singular structure," says Mr. Wodderspoon, in his 'Historic Sites of Suffolk,' "contains several extremely fine rooms. The dining-room is closely panelled in dark oak, carved in a manner which would do honour even to the great genius of Grinling Gibbons. The fireplace, furnishing capacious chimney corners, exhibits the finest parts of the carver's skill in wreaths of vine and pendant fruits. In the centre protrudes a strong bas-relief of the arms and crest of the Sparrowe family, and on each side are panels inlaid in fanciful designs. A door to the right of the fireplace also exhibits some fine inlaying and carving; and the beams of the room—an unusual circumstance—are as deeply chiselled as any portion of the wainscot. The dimensions of this room are 22 feet by 21 feet; and although the apartment is, from the lowness of the ceiling, and its dark lining, rather sombre to the eye, yet it is one of the finest rooms of its size in Ipswich. Upon the first floor spreads an apartment more fitting for the mansion of a nobleman than the residence of a private individual. It extends over the whole of the front part of the house. The ceiling is traversed by heavy oak beams, and divided into compartments ornamented by ponderous wreaths of fruit. The corners are filled with shields containing the crests of the family. The dimensions of the room are 46 feet by 21 feet. [Several old paintings hang in this apartment; among others, a portrait of James I., strikingly historical in its character.] In a bed-chamber, adjoining this room, the ornaments are changed, fleur-de-lis being substituted for the usual garlands of fruit and family badges. No reason has been assigned for this.\* A small door in one corner of the

large apartment opens upon a staircase leading to the roof of the house, from which issues a doorway to the leads over the wide eaves of the building.

Late in the last century," continues Wodderspoon, "a singular discovery was made in the upper story of the house, being nothing less than a concealed loft, without doubt forming the roof of a chapel, the body of which existed in a room immediately beneath. The existence of this apartment was discovered by the merest accident, the connection between the loft being separated by a built-up wall. Time and damp, however, displacing a portion of the plaster, the light of day found its way through the cranny, and the place was discovered. The arched timbers of a slightly ornamented roof exist within it; and at the time of its being opened the floor was strewn with wooden angels, and such figures as usually serve to decorate a Catholic oratory."

There exists a tradition that Charles II. was concealed in this hidden part of the chapel, during one of his many attempts to escape after the battle of Worcester. The tradition is countenanced by the family having in their possession portraits of his father, mother, and grandfather, a half-length of himself, presented by him, and more especially by a miniature and locket of Charles, and a miniature of Mrs. Lane, also presented by the king to the family.\*

The premises attached to the house were at one time very extensive; and there are some parts about the courtyard of the building, which is now the back entrance, that deserve further attention from antiquaries,—the character of some reliefs on one of the walls pointing to a much earlier date than that ascertained for the present part of the building.

T. S. G.

## PROFESSIONAL REMUNERATION.

FOWLER D. DRAKE.

THIS was an action tried February 8th, in the Court of Exchequer, against the magistrates of the county of Devon, for the residue of a claim of 534*l.*, for the erection of the County Lunatic Asylum.

It appeared from the evidence of the Earl of Devon and Lord Courtenay, that Mr. Fowler was the successful competitor out of about sixty, whose designs had been submitted to Mr. Hardwick, who reported fully upon their respective merits. Having appointed Mr. F. their architect, the magistrates proposed to him that he should accept a less remuneration than the usual commission of 5 per cent., which he declined. At a subsequent meeting they admitted that the commission was proper, but wished to limit it to a definite amount of outlay, which was fixed at 40,000*l.*, and to this Mr. F. eventually consented. In the course of the building many additional works were executed beyond those contemplated at the time of the agreement, as was proved by the reports of the committee to the quarter sessions, in which they so state and ask for additional grants of money to cover expense; and it was proved by the builder that the contracts for such additional works amounted to 7,954*l.*, besides about 10,000*l.* for extras upon the original contract. The site had not been fixed upon when the design was made. The whole question turned upon the construction of the agreement, viz., whether the additional works for which the further claim of commission was made, were contemplated at the time, and included in the words "all extra works." Mr. Tite was called to give the proper and professional interpretation of the word "extra," but the Chief Baron took it upon himself, and by illustration of a supposed case confirmed the view insisted on by the plaintiff.

The counsel for the defendant called no witnesses, but relied upon a statement which had been sent in with the original or competition drawings, explaining what was contemplated in them, or what they might be made to embrace, but these documents had been superseded by amended plans made agreeably to suggestions of Mr. Hardwick, and which are referred to in the preamble to the agreement, and formed the basis of the understanding. Mr. Crowder made a speech of two hours and

a quarter, almost wholly upon this ground, but the Judge, in summing up the case, showed that the additional works claimed for, were not included, or contemplated, and left it to the jury whether the plaintiff was not entitled to recover 394*l.*, being the commission on the additional works proved by the builder. His lordship also made some observations in his address to the jury, in regard to the practice in liberal professions, and that of remunerating architects by a commission on the outlay, clearly justifying that course. Considering these remarks interesting, we have obtained the short-hand writer's report of them.

The Chief Baron (Pollock), in summing up, observed, the case had lasted a long time, but the point was about the shortest one possible, and ought to have been decided four hours ago; it was simply whether or no Mr. Fowler was entitled to the sum he claimed. It was an action of assumpsit with work and labour; the defendant pleaded payment, and the question was, whether the plaintiff had been paid; it was, he believed, a question entirely for the jury.

It would seem the parties met together on the 6th of August, 1841; Lords Devon and Courtenay were present with others on that occasion, but they were the only two persons out of all who were present who had been called as witnesses; they had given their versions of what passed. On that occasion the resolution the jury had heard read was entered into, and the question really was, what was the meaning of that resolution with reference to all the circumstances. He (the Chief Baron) did not think it was a question of law, but a question of fact for them. So he thought the case the learned counsel for the defendant had cited as occurring before Lord Tenterden—that was not a question of law but of fact. He (the Judge) did not quite enter into some of the opinions that had been occasionally expressed by very eminent judges both before and in his time as to the charges of surveyors; he could not say he saw with the same jealousy which he had frequently heard expressed on that bench, and others, the charges made from year to year, and from time to time, of so much per cent. as the remuneration of the architect or surveyor. He did not think the present system would have continued for so long a series of years as it had, if it had not been found consistent with the duties of the persons so employed, and for the benefit of the public who so employed them. They were all perfectly familiar with the charges of a broker in commercial matters; they varied with the importance of the business done, because of the responsibility required, and the importance of the transaction; and, therefore, the attention that was to be given to the matter in hand varied. It was perfectly well known what was the manner in which attorneys were paid. As to gentlemen of the bar, the theory was they received nothing; but he believed it might be said that, as regarded the liberal and learned professions, it was expected its members should be paid, not in proportion to the mere labour and work done, but that the responsibility and importance of it must have some effect on the charges. It was perfectly notorious a broker on the Stock Exchange charged a per centage upon a transaction, and yet, beyond all doubt, it required no more than pen and ink to transfer 2,000*l.*, than it did 100*l.*—the charge was in proportion, not as to the trouble and exertion of a man walking across from his back office to the Stock Exchange, and making one or two entries,—it was the management of the transaction. He (the judge) must say he did not view with that jealousy others did the charges made by architects and surveyors; he did not think the profession of an architect more than any other liberal profession (and a liberal profession it was) was chargeable, as far as his experience went, and as far as that experience had received any addition by what he had seen in courts of justice, with receiving an immoderate amount of remuneration.

Now, did the jury believe Mr. Fowler was entitled to his per centage on the present occasion?—if he was, he was entitled to a verdict; and if entitled to a verdict, it would then be for them to say for how much. He owned it did not appear to him the whole of the sum claimed of 534*l.* was distinctly made out, but there was evidence for their consideration as to some of it. The facts lay in a very narrow compass. In 1841, the magistrates of the county of Devon intended to construct a lunatic asylum, and the plaintiff was ultimately selected as the architect to carry out their views. The two important documents in the cause were a document signed by Mr. Fowler, March 2nd, 1841, and the memorandum or resolution, of the 6th of August in the same year, there being an interval of several months between the two. In the mean time Mr. Hardwick, another architect of eminence, had been consulted in the matter by the visiting justices, and it was in consequence of some report that came from him, he believed, that the plaintiff was ap-

\* The fleur-de-lis is a very common ceiling ornament in timber-framed houses in various parts of the town, and the alteration may have been merely to comply with fashion.

\* The figures introduced by the artist in the accompanying engraving are allusive to the king's concealment here.



pointed to carry out the plans. In the report that was made by Mr. Fowler, he certainly did mention some of the matters now made the subject of a charge, but he mentioned them in this way; "the extent of the ground and gardens will probably be governed by local circumstances;" and he made allusions by which the possibility of agriculture and horticulture coming into operation had occurred to his mind, and so with regard to the supply of water, and other matters, but it was clear he had come to no definite conclusion. Mr. Fowler was called upon to attend the justices in August. He had been asked to undertake this not in a professional manner, that was really the substance of the case. He was asked,—"Would he undertake to do it for a round sum?" He answered as every respectable person would answer following a respectable profession,—"I will do nothing which the rest of my brethren in the profession would consider improper as a member of that profession; its character and honour I will maintain, and I will not under-bargain the rest of my brethren,—that is the usual charge we make, and as an honest member of the profession, I think I ought not to receive less;" and it appeared to him (the Judge), that was the basis of the arrangement; and what ultimately would be for the consideration of the jury would be this, whether they thought in the expenditure that took place beyond the original sum, he was strictly within the resolution; if so, he was not entitled, if not he was. The amount finally agreed for was 40,000*l.*, his per centage upon that was 2,000*l.*; but then Mr. Fowler says, "there are 14,000*l.* or 15,000*l.* spent beyond: upon 7,000*l.* I do not charge, for they are extras, but on 7,800*l.*, I do, for they are additions;" that is, he says, as to the first, "they are matters that grow out of, and are intimately connected with, the work, so that I cannot fairly charge for them." On the other hand he says, "Certain of these matters form no part of the original plan, and they are additions." It seemed to him the true question the jury had to decide was, what was the reasonable and liberal construction of the resolution, the magistrates intending to limit their expenditure to 40,000*l.*, and to treat with him on the footing of a 5 per cent. transaction, considering whether it could embrace the contract of Harvey, which amounted to 7,800*l.* On the 7,102*l.* Mr. Fowler made no charge, they were extras. Then he says, that inasmuch as the original plans did not embrace any of Harvey's, amounting to 7,800*l.*, he was entitled to his 5 per cent. on that, and he certainly had been put to considerable trouble and labour on that account.

The jury retired, and after an interval of an hour and twenty minutes, returned a verdict for the defendant! A new trial will of course be moved for.

#### ELECTRO-TELEGRAPHIC PROGRESS.

WIRES have been laid to Windsor for facility of communication between the sovereign and her representatives in Parliament, &c. The offices in the Strand, are open night and day for Parliamentary, law, or other expresses between the metropolis and upwards of 230 of the larger commercial and manufacturing towns in England and Scotland, through more than 1,500 miles of way, besides short branches. —The late speech from the throne was telegraphed at once from the Lothbury station to all the chief towns and newspapers in the empire. The multiple time taken, says a contemporary, in streaming off its 954 words was about half an hour, or 31 words a minute. Between Liverpool and Manchester it was transmitted by the printing process at the rate of 15 words a minute. —The British Telegraphic Company, for a more economical working line, are proceeding with their Bill, which has been declared to have complied with the standing orders. Their scale of remuneration from Government is to be fixed by the Board of Trade. —The French Government, it is said, contemplate a measure to open the French electric telegraphs to the public. The Minister of the Interior has presented a Bill for the establishment of three lines from Tonnerre, Havre, and Angers, to cost 685,665*fr.* The committee also proposes four others, viz.: from Chalons-sur-Marne, Nevers, Châteauroux, and Dunkirk. A sum of 900,637*fr.* to suffice for the construction of the seven. The greatest speed attained under the committee's inspection was 87 letters in a minute; but the reading then became difficult, and frequently even impossible. The despatches of the Government are conveyed at the rate of 75 letters a minute. —According to the *Presse*, Mr. Brett's contract for the sub-marine

line from Calais to Dover, binds him to have it completed by 1st September next, unless stopped by the French Government, and at a cost of 450,000*fr.* The length is 18 miles English, but the telegraph, of seven wires, is to be 23 miles long, to allow for oscillation. —This is a small affair compared with the next we have to notice, namely, one between New York and the Isle of Wight, the projectors of which are to bring their plan before Congress at its present session. They propose to lay down a substantial insulated wire of 36 fibres, coated one half-inch with gutta percha, to guarantee its working with integrity for ten years, and to complete it in twenty months from the date of contract, for a sum not to exceed 3,000,000 dollars. —The *Montreal Herald* announces that the line to Bytown, in Canada, is nearly completed, and that a new cap, made of New Jersey clay, invented by Mr. Barney, has been used with great success: —The following is a list of the different lines in Canada: —Quebec and Halifax, 200 miles; Quebec and Toronto, 556; Toronto and Hamilton, 46; Montreal and Bytown, 120; Hamilton and London, 84; Niagara, 53; Chippewa, 15; Montreal and Troy, 52; total, 1,131 miles.

#### NOTES IN THE PROVINCES.

THE site of the new lunatic asylum at Brentwood has been staked out. The building will be 800 feet long by 500 deep. —The public baths at Leicester have been extended. The swimming bath is 60 yards in length, 17 feet wide, and 3 to 6 feet deep. It holds 100,000 gallons. The roof is supported by pillars, and over the cross beams are various mottoes. —An Extra-mural Cemetery Company is in course of formation at Brighton: capital, 20,000*l.*, in 2,000 shares of 10*l.* each; deposit, 1*fr.* per share. —An effort is being made at Portsmouth to erect a new Athenæum in place of the society's present building. —The church of Holy Trinity, Stratford-on-Avon, is shortly to be surveyed by an architect, with the view of increasing the accommodation. —After a lapse of nine years, daily Divine service is about to be resumed in Hereford Cathedral. Preparations are going on in the nave for that purpose, and, it is expected, will be completed by 1st March. —The repair of the old castle of Carnarvon has now been completed, under the eye of an architect from the Board of Woods and Forests, Mr. Salvin, and it is said that not only Conway Castle, but other remnants of feudal times now standing in Wales—namely, the Castles of Beaumaris, Harlech, Rhuddlan, Criccieth, Carew, Caerphilly, and Pembroke, will be repaired and preserved from further decay, at the expense of the Crown. —It is intended to extend the Corn Exchange, in Brunswick-street, Liverpool, by erecting a range of offices over it in front. The dimensions of the building at present are 116 feet by 62 feet; the area, 763 square yards; the number of stands, 129; and the mean height, 15 feet. When extended according to the plans, it will be 103 feet by 99 feet; the area 1,133 square yards, exclusive of offices; and the stands may be increased to 190; the mean height to be 29 feet. The room will be lighted from the roof, which will be of open iron-work. —All Saints Church, Grosvenor-square, Manchester, the property of the Rev. Dr. Burton, the pastor, was much damaged by fire on Wednesday in last week. Some burning embers appear to have been carried through the flue of the stove into a large scaffolding hole, that had only been covered by the wall plate, which communicated the fire to the roof, the whole of which was destroyed and the organ and pews were much injured. The total damage is estimated at 3,500*l.* The congregation have already met to adopt measures for restoring the edifice. —The town council of Preston have voted 8,000*l.* for the erection of public baths and washhouses, to contain 100 baths and 100 washing compartments, on the model at Goulston-square, but at, it is said, a greatly reduced cost. —A Roman Catholic chapel and priest's house are about to be erected at Otley. —A new congregational chapel is in course of erection at Cockermouth, by Messrs. Fleming and White, builders. It is in the Perpendicular style, with three gables to the front, and is built of white freestone.

—The parish church of Collumpton, Devon, was re-opened on Tuesday, the 12th instant. A cumbrous gallery has been removed from the noted Lane's Chapel, and this aisle and the church generally, re-seated with low framing, in wainscot, with a good proportion of open free seats, and an increase of accommodation. The organ has been divided, and removed into the tower, the panelled arch having been previously partitioned across the west gallery—reconstructed, and its Elizabethan fronts repaired and varnished. The rood screen, a remarkably fine one, repaired, and disencumbered of an Italian cornice, which has given place to a tall cresting of Tudor flower, the whole being gilt and painted in colours, imitating the old work. A new carved octagonal pulpit is ascended by a staircase, with traceried defences. The tracery of the windows has been repaired, and the lights glazed with ground glass. The architect is Mr. Ashworth, of Exeter: the contractor, Mr. Mason.

#### VIEW AND DETAILS OF THE BANQUETING HOUSE, WHITEHALL.

MR. OCTAVIUS HANSARD, a young architect, has published an elevation of Inigo Jones's Banqueting House to a large scale,\* and two sheets of details, one embracing the inferior order, and its windows, with the ornament between the capitals above, and the other the superior order, its window, and balustrade. The measurements appear to have been very carefully taken, and are fully given. Both the view and the details are beautifully drawn, and confer great credit on Mr. Hansard; they should be in every office portfolio.

A few pages of particulars concerning the building accompany the prints, but as we have elsewhere given these, we need not repeat them here.† Mr. Hansard observes that "on a comparison of the original drawings by Inigo Jones (in the library of Worcester College, Oxford), with the structure itself, it would appear that at some period the rusticated basement has been altered, probably on the occasion of a repair; indeed, there can be no doubt of the rustication of the west front having been originally similar to that of the east." The total length of the front, on the plinth line, is 121 feet 3 inches; the total height, 75 feet 3½ inches.

#### BURFORD'S PANORAMA OF THE POLAR REGIONS.

IN presenting a beautiful painting of the Polar regions, as seen during the expedition of Capt. Jas. Ross, in 1848-9, from drawings which were taken by Lieut. Browne, of *The Enterprise*, Mr. Burford has produced a striking effect, by dividing the great circle into two, and exhibiting on one side the Polar seas at midnight in the summer season, and on the other a similar scene at noon, under all the sublime severities of an arctic winter. In the first the vessels float, amidst towering icebergs and tangible desolation. In the second, the vessels are ice-bound and snow-covered in a vast and oppressive solitude, bringing forcibly to the mind the severities and privations endured by the crew. A wall of snow blocks is built around each ship to prevent the abstraction of heat, and there is a wall of similar construction connecting the two vessels to facilitate communication. Both views are admirably painted and full of interest.

#### PANORAMA OF NEW ZEALAND. VENTILATION OF PUBLIC ROOMS.

THE Panorama of New Zealand, now exhibiting in Leicester-square, being the work of a surveyor and engineer, Mr. S. C. Brees, known as the author of "Railway Practice," may be regarded as an actual chart of the country, wherein not merely the principal buildings, but every settler's house and clearing, may be found; and, when are added to this a fine country and great cleverness in its delineation, more so in some parts than in others by the way, it will be seen that it has the essentials for an exhibition of great interest. A month's reading would fail to give anything

\* Weale, Holborn.  
† Vol. VII., p. 362.



like the correct and vivid impression of the country and the mode of life which are to be gained by listening to Mr. Brees for a couple of hours, while the picture is passing before you. This painting is wanting in those elements of the poetical and the sublime to be found in the Panorama of the Nile. It has few associations: but it belongs to the present instead of the past; has great interest, though of another kind, and will well justify a visit.

A correspondent, "Q.," has requested us to draw Mr. Brees's attention to the want of ventilation in the room where the picture is exhibited, especially in the gallery, and we must add, that the fact had not escaped our notice. "Q." says justly, that it is the exhibitor's interest to remove this defect—"For any thing which prevents a spectator from appreciating the merits of his performance tends to qualify or altogether prevent the approbation which would, without doubt, in many cases, be extensively given; and the more is its careful and immediate correction to be desired, inasmuch as its influence is unknown to, or unregarded by, so many. The lassitude, and the indifference to any subject, which it inspires, would by such persons be readily ascribed to a want of merit in the exhibition itself; an opinion, the error of which its real excellence and utility would need only the assistance of a supply of pure air to demonstrate."

#### WIDE ESTIMATING.

TENDERS for the erection of a farm house and farm buildings, at Ashby, near Grimsby, Lincolnshire; Mr. J. Chapman, architect; viz. :—

Forman and Frow, Hull.....	£1,269	11	0
Guy, Grimsby.....	963	9	3
Roebuck, Lacey.....	950	0	0
Walliss and Hewitt, Raseen.....	900	0	0
Margesson, Hull.....	897	0	0
Johnson, Lacey.....	894	0	0
Andrews, Wainfleet.....	838	0	0
Suddaby, Waltham.....	775	0	0
Brown, Grimsby (accepted) ..	768	0	0

Tenders for the completion of eight houses in Commercial-road, Peckham, advertised for in THE BUILDER :—

Mosely and Co. ....	£1,198	0	0
Hall.....	1,093	0	0
Walker and Co. ....	893	0	0
Tarrant.....	888	8	0
Shears.....	800	0	0
Harvey.....	766	0	0
Wells, Wm. ....	748	0	0
Drew.....	721	0	0
Buzzard.....	716	14	0
Burrell.....	690	0	0
Machell.....	656	0	0
Heath.....	650	0	0
Surridge.....	649	19	0
Frost.....	615	0	0
Howlett.....	610	0	0

#### Miscellaneous.

TRINITY CONGREGATIONAL CHURCH, SCARBRO.—The first stone of Trinity Congregational Church, Scarbro, was laid on Tuesday, Feb. 5, by Lady Lowthrop. It will be in the geometrical Second Pointed style, (Early Decorated) and will consist of a nave and transepts, and engaged tower at the angle of the nave. There will be a recess behind the pulpit, containing organ gallery and vestries: the nave has gabled side chapels on either side. It will contain 1,000 sittings; the total cost, including schools, will be 3,000*l*. The contractors are Messrs. Dove, Wilson, and Woodall, of Scarbro. Mr. Raffles Brown, of Liverpool, architect. The following is a list of tenders for the church.

	Excavator, Mason, Rough Mason, Bricklayer, Plasterer, and Slater.	Carpenter and Joiner.
Vasey, Whitby.....	£. s. d. 2,422 0 0	568
Wood, Derby.....	2,620 0 0	627
Myers, London.....	2,650 0 0	600
Thompson, Scarbro.....	1,797 0 0	
Crosby, Scarbro.....	..	560
Woodall, Scarbro.....	..	*433
Dove and Wilson.....	*1,518 14 9	

\* Accepted.

THE INTERNATIONAL EXHIBITION.—A special general meeting of the members of the Society of Arts, convened by requisition to the Council, was held at the Adelphi last week, for the purpose of ascertaining and considering the position of the society with respect to the Great Industrial Exhibition. The chair was taken by Mr. W. Tooke, one of the vice-presidents, and a large number of the leading members were in attendance. After some formal preliminaries, Mr. Scott Russell gave a long and interesting narrative of the procedure of the council, which appeared to give satisfaction, and it was adopted and ordered to be printed and circulated for the use of the members, with additions to render it a complete report of the transactions down to the present time. As one of the executive committee, Mr. W. Dilke also made a statement of its proceedings, which the meeting received in the same spirit of satisfaction, and from which it appeared that a resolution had been passed at the committee's fourth meeting, to the effect that the contract with Messrs. Munday being at an end the functions of the executive committee were at an end also, and that they were of opinion, therefore, that it was desirable the Royal Commission should be left as free to select the best organization for carrying their intentions into effect as if the executive committee had never been appointed, and that they had to express their entire readiness at once to place their position in the hands of his Royal Highness and the Royal Commissioners.

SCOTLAND.—It has been resolved at Edinburgh to erect an architectural monument there to Lord Jeffrey. The initiative has been taken by Professor Wilson, the Lords of Session, Lord Advocate, and other influential parties, who have appointed committees in Edinburgh and London to carry out the object.

—Operations are in progress for the commencement of the proposed Fine-Art Gallery on the Mound, at Edinburgh.—The house of John Knox there is to be preserved in all time coming as a monument to the old Calvinist, funds being in course of accumulation for that purpose, and now amounting to 2,300*l*.—A new square and arcades of mercantile offices, shops, &c., is to be built at Blythwood Holm, Glasgow, lately purchased by Mr. James Scott, who has recently visited the continent with Mr. Kirkland, architect, "for the purpose of inspecting the finest things of the kind that Europe can produce." "We believe," says the *North British Mail*, "that the design fixed upon is something after, and at least equal, if not superior, to the Palais Royal Arcade at Paris," and that "the leading features of this magnificent arcade have been retained by Mr. Kirkland in his plans, with such improvements, both in convenience and designs, as will make the Blythwood Holm buildings far outvie those of the French capital." The whole is to be fireproof, "on quite a new principle, never yet introduced into Scotland," but erected at least as cheaply as on the old system.—The Victoria dock, at Aberdeen, has been at length completed. The work began in the spring of 1844.

GREENWICH HOSPITAL.—Sir: Looking over your columns on Saturday morning last, I was much surprised to see therein a letter complaining of certain alterations as carried on in our hospital, this letter having appended to it my name. I take the earliest opportunity of writing to you to deny that I am the author of this letter, and to request of you to give me the fullest opportunity of expressing this denial. I shall also expect that you will aid me, as far as possible, in ascertaining who the individual is that has thus endeavoured to annoy and injure me by making me appear to intrude my opinion into matters with which I have no possible concern, and secretly to insinuate motives of conduct on the part of an individual officer of whom I know nothing. I am the more anxious about the matter, as on the same day a similar letter appeared in the *Nautical Standard* and in the *Kentish Independent*, showing that the individual who wrote them, could be industrious as well as malicious.

PRIOR PURVIS, M.D.  
\* \* We have forwarded to Dr. Purvis the original letter, and shall gladly assist in the endeavour to discover the perpetrator of the forgery. Against this description of deception an editor has no defence.

BUILDINGS DAMAGED DURING THE LATE STORM.—A church, building at Hammersmith, had the roof blown off, we are told. At Liverpool, the spire of Christ Church, Oxtou-road, has suffered severely, and will require to be rebuilt from the base: some stones fell through the roof. The pinnacle of Grange-lane Scotch Church was blown down, and fell through the roof: and a small chapel, in same lane, had its windows blown out. The roof of the new market at Birkenhead was stripped of its lead, and nearly carried off altogether,—part of it was actually blown off. At Chester, the Independent Chapel, in Queen-street, was almost entirely unroofed; and the chimney of a house near the racecourse was lifted, bodily, and set down entire and perpendicular as it stood, chimney-pot and all, in an adjacent garden. The railway station at Shrewsbury was lifted from its foundation and blown to pieces. Five of the Ribble Valley railway arches, near Preston, were shattered, it is feared irreparably. One of the pinnacles of the Roman Catholic church, Park-row, Leeds, was blown off, and fell through the roof. Part of the spire of Christ Church, Doncaster, was also blown down, injuring the roof and pews. The partial and total destruction of houses, chimney-stacks, warehouses, &c., between the Irish coast and the French, has been immense.

SOCIETY OF ANTIQUARIES, NEWCASTLE. The thirty-seventh anniversary meeting of this society was held in the castle of Newcastle on Monday week, the Hon. H. T. Liddell, V.P., in the chair, when Mr. J. Adamson, the senior secretary, read the council's report, which was adopted,—and a resolution moved by the chairman, and carried unanimously, to the effect that a memorial to the Treasury be prepared, praying concurrence and aid in preserving Tynemouth Priory ruins from desecration and dilapidation. The memorial itself was also read and adopted. Dr. Charlton then stated that the Duke of Northumberland was willing to extend his survey of British and Roman camps, roads, and other remains in the north of Yorkshire, further northward, if the society felt disposed to assist; and this Dr. Charlton thought ought to be done before the visit of one of the metropolitan Archaeological Societies, which might be expected in a year or two,—either of which, he was sure, would meet with a cordial welcome. After some conversation on this and other topics, and the examination of some antiquities, the meeting proceeded to elect office bearers and receive donations, &c.

THE METEOR OF MONDAY LAST.—Seeing two letters in Wednesday's *Times*, describing the meteor on Monday evening as seen from various places, and having had a very favourable opportunity of witnessing that splendid phenomenon, as seen here (Rugby), I, as a constant reader of your publication, trouble you with this. On Monday evening, about ten minutes to eleven o'clock, while passing through a large open space, part used as a burial ground and part as allotment gardens, the most powerful light I ever witnessed suddenly illumined the atmosphere, and what appeared like a rocket exploded apparently a few yards from me. I walked on very quickly about two hundred yards, when I heard a rumbling of thunder, which seemed to shake the ground, and caused great consternation; the stars during the whole time shining with unusual brilliancy. Waiting an explanation from some of your philosophical readers, I am, Sir, &c.—A SURVEYOR.

METROPOLITAN SEWERS COMMISSION.—At the last meeting, in Greek-street, on a report by Mr. Forster as to the Westminster drainage being read, the Westminster Sewers Commissioners at last got the concurrence of the Metropolitan Commission to a specified scheme for the drainage of Victoria-street, &c., Westminster. The Thames is to be further damaged. A report by Mr. Gotto was then read as to the propriety of building a new sewer in Down-street, Piccadilly, 525 feet in length, and it was agreed to advertise the terms of contract.

MILITARY APPOINTMENT.—Lieut.-Col. C. F. Greene has been appointed director of Government engineering and architectural works, with a salary of 1,000*l*. a-year.

A NEW CHURCH is proposed to be erected in Carlisle-street, Portman Market.



**ABATTOIRS.—TREATMENT OF THE CALF.**—“No animal suffers so much as the calf,” is a thing often said, and sometimes with as little concern as if it were a proper and necessary thing that they should suffer cruelties to metamorphose their flesh, as human food, from what God and nature intended. The “white” veal which persons, either ignorantly, or if knowingly, with a very discreditably want of feeling, crave, is not the natural colour, any more than white beef would be that of the ox. Smollett alludes to the cruel and unwholesome practices in his time; and a French traveller, about 1690, mentions that the English veal has not the “beautiful red” colour of the French. That red veal is the flesh of the calf in its proper state; the white is an artificial, drained, flaccid thing, the offspring of cruelty alone. Any candid medical man would in an instant decide on the difference of wholesomeness between the two. The calf is bled several times before its death to a cruel degree, often till it faints; very frequently, during the night, a plug being put in, and taken out again when the operation is repeated,—often also with the head downward, which must cause horrible pain; and the process of “killing” is wilfully lingering, perhaps an hour and a half sometimes, and very pitiable and abhorrent. The writer has seen it—let any one else do the same, and he will protest against veal, as now killed, for the rest of his life. And, oh! that some may exist in the present generation destined to remove this foul blot from English humanity! The “sworn tormentors” of a former day are gone—let the English “calf-torturer” go in this.—**EULALIES.**

**THE FIRE IN LAMBETH.**—The loss caused by this fearful disaster is very large, and it is but partially covered by insurance. Mr. Myers’ loss is greatly increased by the total destruction of a large quantity of carved stonework for ecclesiastical buildings in progress. Of all his workmen not one has saved a tool. At the factory of Messrs. Nickels, india-rubber web manufacturers, whose loss will be very great, a large body of young women have been thrown out of work. A subscription has been set on foot for their relief, and to assist the workmen to obtain fresh tools. A statement has reached us, to the effect that if Mr. Braidwood had listened to the urgent entreaties of Messrs. Nickels, and brought water to bear on a certain portion of their premises, property to a large amount might have been saved.

**EXEMPTION OF DWELLINGS OF POOR FROM LOCAL TAXATION.**—Mr. P. Scrope, M.P., has moved for leave to bring in his Bill on this subject; but meeting with strong opposition on the ground that it would only aggravate the evil benevolently intended to be remedied, and increase rents, to the landlord’s profit, in place of diminishing them, the motion was withdrawn.

**IRON PERMANENT WAYS.\***—A series of experiments has been carried out by Mr. P. W. Barlow, C.E., from which he has been led to recommend the substitution of cast-iron in place of wood in laying the substructure of permanent way, as the only means of preventing those irregularities of surface which cause blows to be given by the engine that are not only annoying to passengers, but further and more and more rapidly destructive to the way and to the carriages, as well as wasteful of the locomotive power and mechanism. The present practice he regards as temporary way much more than permanent. Mr. Barlow finds it to be a mistake, that a partially soft elastic material such as wood is requisite to smooth and easy motion: the more rigid, and level, and polished, the surface, the easier has he found the traction, and the better suited at least to railway transit. Cast-iron sleepers in two halves, with half chairs fitting the rail, and bolted together so as to avoid the use of the key, is that construction of substructure to which experiment has led him to yield the preference, from the facility with which it is laid, from the perfect joint which it gives, and the security from breakage in the event of getting off the line. The point of the meeting of the plates is situated between the chairs, so that the bolts act under a spring which destroys all liability of loosening, to which he has not found any tendency.

\* Report to the Directors of the South-Eastern Railway Company on Permanent Way. By P. W. Barlow, C.E., F.R.S., &c.

**PROJECTED WORKS.**—Advertisements have been issued for tenders, by 4th March, for the erection of a Baptist Chapel, with vestries, school-room, and offices, at Nottingham; by a date not specified, for the erection of a dwelling-house and a set of farm offices in Leicestershire, and a set of farm offices at Aston, in Derbyshire; by 2nd March, for the erection of the Lincoln and Lincolnshire Penitent Females’ Home at Lincoln; and by 26th, for the erection of a new workhouse at Birmingham.

**THE VAPOURS OF DISEASE AND DEATH AT LAMBETH.**—Pray, Sir, are any steps being taken towards the removal of all those abominable nuisances in that seat of poison, Princess-street, Lambeth, consisting of bone-boilers, potteries, starch-makers, and several of a like abominable nature? or are they to continue to poison and annoy a whole community through next summer, and carry off their thousands of victims again? A person cannot now pass within a quarter of a mile, without feeling a sensation of sickness, and almost vomiting, so intolerable is it; and when the wind is southerly (I pity the poor archbishop), the poisonous vapours are carried, not only through Lambeth, but also into the very heart of the metropolis. If the whole of these wretched hovels and filthy factories were swept away altogether from the south side of Lambeth Church to Vauxhall, and again, from the waterside back to the railway arches, it would be a downright boon to the parish; and in their places, there should be a handsome river frontage, consisting of a terrace, with carriage-way next the water, and streets at certain distances, to turn out of this terrace, towards the railway arches; this would soon become a valuable property, and would also be an ornament to the neighbourhood both by land and by water.—**R. M.**

**THE NORMAL COLLEGE FOR WALES.**—At the annual meeting of the members of the above institution, held in Swansea on the 2nd ult., it was resolved to expend less money upon the erection of a building than had been previously contemplated. According to *Felix Farley’s Journal*, the design by Messrs. Fuller and Giggell has therefore been laid aside, and the design of Mr. William Richards, architect, of Swansea, approved of. It contains accommodation for forty students, together with a residence for the master, and all necessary offices. Mr. Joseph Richards has undertaken to erect the building within the sum specified in the resolution, viz., 1,700*l*.

**DRAWING SCHOOLS FOR ARTIZANS, CAMDEN-TOWN.**—An evening drawing school for artizans has been proposed to be opened in Camden-town, the Government School of Design not being available to this class, from its locality and fixed course of study. It is considered by the promoters of the present scheme that England greatly requires, at the present moment, tasteful workmen, the more especially as she has thrown the gauntlet to foreign countries which hold an advantage in this respect. A number of manufacturers and others have therefore proposed the means alluded to, to obviate in some measure this serious disadvantage, and a meeting was to be held on Thursday evening, to devise means to carry out this proposition,—too late for us to do more in our present number than mention the intention, and express our good wishes in favour of it.

**MORTAR FOR ARCHES.**—Sir: How is it architects still use cement for arches, when we have seen so many fall of late in consequence? Lime is far superior, as it does not set quick like cement, but gradually giving the whole of the work its due time to settle. Cement remixed is worthless; lime mortar not.—**A CLERK OF WORKS OF FORTY-TWO YEARS’ EXPERIENCE.**

**FULHAM UNION WORKHOUSE.**—It will be remembered that designs for this union house were obtained in competition, and that on the selection of a plan by the guardians unaided, some articles appeared in our pages, pointing out the error they had fallen into, and the injustice committed.\* If the guardians had listened to us, they would have saved themselves much mortification, and the parish a large sum of money. The mess they are now in surpasses belief. We shall probably give particulars as a warning to other boards.

\* See Vol. VI. p. 230, &c.

**LABOURERS’ COTTAGES AT 10*l*. A-PIECE.**—A correspondent of the *Chelmsford Chronicle*, Mr. Clay, residing at Enville, near Ongar, has offered to allow the public, for one week in the latter end of March, to inspect an inhabited cottage erected at a cost of 10*l*. Perhaps some of our correspondents may be able to point out how this desideratum of a 10*l*. cottage is or can be realized.

**COMPETITION.**—Designs and specifications, &c., are wanted by 20th March, for public baths and washhouses at Greenwich, Kent. Particulars as advertised.

**SURVEYORSHIP TO THE SALTERS’ COMPANY.**—The Court of Assistants of the Salters’ Company proceeded on the 7th instant to fill up the vacancy in the office of surveyor to the company, caused by the death of the late Mr. Valentine, when Mr. Garland, of the firm of Garland and Christopher, was unanimously elected.

**THE TELEKOPHONON, OR SPEAKING TELEGRAPH,** has, during the last twelve months, come into very general use. In several of the largest buildings which have recently been erected in London, Mr. Whishaw’s useful invention has been considered a necessary appendage, and is now introduced in the specifications issuing from the offices of some of the most eminent architects of the day. Besides the numerous public buildings into which it has been introduced, it is about to be fitted-up throughout the Earl of Ellesmere’s splendid mansion, under the direction of Mr. Barry. It is now nearly two years since Mr. Whishaw first applied it in private houses as a most efficient substitute for bells.—*Mining Journal.*

**BUILDING FOR THE EXHIBITION OF 1851.**—The committee appointed for the matters connected with the intended building consists of,—the Duke of Buccleuch; the Earl of Ellesmere; Messrs. Barry, Cockerell, and Donaldson, architects; and Messrs. Cubitt, Stephenson, and Brunel, engineers. They have already had three meetings.

**LARGE BRICKS FOR CHURCHES.**—The duty paid on bricks used for ecclesiastical purposes is returned; why then should not a much larger brick be made for the erection of churches, which would, I imagine, be productive of increased stability, and a great saving of expense in the laying, less consumption of mortar, &c.?  
**E. L.**

[Advertisement.]

#### BIRMINGHAM UNION COMPETITION.

To the Editor of the Builder.

Sir,—In your paper of the 29th September last, you inserted a letter from me respecting the competition for the Birmingham new Workhouse, in which I stated, as I then believed on good authority, that Mr. Edge had, during the first competition, canvassed the guardians in favour of the architects whose design was adopted in the second competition, in which he was one of the three architects appointed to make the selection, and Mr. Edge having, in your paper of the 13th October, contradicted this statement, I have since then caused inquiries to be made by those upon whom I can depend, and I take this opportunity of stating that I now find that I was misled by the information I received at the time I made that statement.

I therefore, Mr. Editor, beg you will allow me, through the medium of your paper, to correct the error I then made, and also to assure Mr. Edge that I regret its publication, and although several months have elapsed since its appearance, I trust, in thus rendering the justice due to Mr. Edge, to show that in adopting the motto I then used I am always really anxious to act in accordance therewith.  
“LOVER OF FAIR PLAY.”

#### TENDERS

For alterations and additions to be executed for Mr. Elers, Mount Ephraim, Tonbridge Wells.

Burrett .....	£1,165
Thorpe and Son .....	1,160
Martin .....	1,153
Willcombe .....	1,143
Scholes .....	1,131
James and Henry Thorpe .....	878

For rebuilding a house and premises, Newington Causeway. Mr. Henry Baker, architect.

Patrick .....	£1,170
Smith .....	1,139
Harden .....	1,900
Coleman .....	996
Wilson .....	980
Cooper and Davis (accepted) .....	980

Quantities furnished by Mr. T. G. Austin.

For rebuilding a house in the Whitechapel-road for Mr. Humphries.

West .....	£1,155
Rawlings .....	1,044
R. and G. Curtis .....	884
Furnwell .....	880











# The Builder.

No. CCCLXVIII.

SATURDAY, FEBRUARY 23, 1850.

**A**N old professional friend who lives a hundred miles from London, and had rattled up to give evidence in a railway compensation case, looked in last night for half-an-hour's gossip about things in general, and architecture in particular. Although of the old school, he is one of those who fully appreciate the intellectual stir of the day, and anticipate great things from it in due time. So far from pooh-poohing young men and their "wild visions,"—insisting on rigorous adherence to precedent,—and discouraging that freedom of thought which is beginning to show itself amongst them, he looks to them hopefully, agreeing with those who think that the destinies of a nation depend upon its boys. He would like to see a little less flippancy and self-conceit in some cases, but, as he good-naturedly says, when their knowledge increases, their own deficiencies will become more apparent, and they will view with greater consideration the short-comings of others. "It is not because I have been five-and-forty years in the profession," he says, "that I am to expect implicit assent to all my opinions, and blind deference to all my suggestions, on the part of those who are but now entering it: fashions have changed, though principles are permanent, views are extended, facilities are greater; the little that the youngsters do know is all in accordance with the present state of knowledge, and it is easier for them to advance on that than for one who has already run a race, and would perhaps have to 'try back' at starting."

Our friend has never joined the Institute, because of the narrow clause which makes measuring for artificers a disqualification: he has given up this part of his practice for these five years past (a thing not easy to do in the country), but he protests, very justly, against this ground of exclusion, and on principle will not join the body. Nevertheless, he regards it with great interest, and nearly his first inquiry was to know what had been done at the meeting on Monday evening last. "They sadly want a better room," he remarked. "I attended a meeting last session, when Earl de Grey was presiding in his pleasant way, and had neither seat nor air for two mortal hours. Government ought to find them rooms; but as, perhaps, this is not likely, a coalition should be formed with other societies, and a fitting building erected for their joint use. And now tell me what was done. Did the meeting confirm the report of the council, or had your gentle remonstrance last week any effect?"

The report was not considered. When the honorary secretary was about to read the document for consideration, Mr. Thomson suggested that this was not necessary, giving the council a hint that it had already caused annoyance enough without repetition, and he then moved its confirmation.—Mr. Pownall equally deplored its severity, and seconded the proposition.—Mr. Wild thought it should be read.—Mr. Donaldson defended the report: not giving a medal was a loss to the Institute,

he considered; the council had not determined on that report without extreme regret, but were impelled to it by a sense of duty.—Mr. Barry, jun., on the part of young members like himself, wished to urge upon the council that the competitors would necessarily be students, and that perfect works should not be looked for.—Finding that the discussion was likely to interfere with the business of the evening, the consideration of the subject was referred to a special meeting, to be held next Monday, when a second report from the council, on the disqualification clause, will also be brought up, which we may expect will recommend, in deference to the opinion of the last special meeting, some modification, at all events, of the objectionable and injurious regulation.

"Well," said our friend, "I sincerely hope that the council will, after all, be persuaded to vote a medal to one of the competitors. They must have given much time to the endeavour, and should be encouraged to future efforts."

One of our correspondents, we remarked, who signs himself "An Unsuccessful Competitor," but (very properly) does not identify his design, states that he gave much thought, and the whole of his leisure time for nearly five months, to the exclusion of all other study, in the preparation of his drawings. He continues,—*"The time that I have spent over the drawings I do not regret, further than I begin to doubt whether it would not have been more profitably employed in studying some of the many branches of knowledge which it is necessary to master fully to understand our noble art; for I feel aware that a lifetime is hardly sufficient to acquire a competent knowledge of it, much less the scanty time of an artied clerk; but still, as I strove my best (though that best was perhaps trifling), my defeat shall only inspire me with more ardour to pursue that path to which you constantly exhort us."* This is the right feeling, is n't it?

To continue, however, as to the Institute: the medals for next year are offered for the best essay "On the Distinctive Style of Inigo Jones," the best essay "On rendering Houses Fire-proof," and the best design for "Public Baths and Laundries." The paper of the evening was on some remarkable Brick Buildings of the Medieval Period in the north-east of Germany and on the Coast of the Baltic, by Mr. Charles Fowler, the younger, of which you will see notes in *THE BUILDER* hereafter. It was very discreetly written and modestly delivered.

Mr. Smirke pointed out the great neglect of brickwork in England, and showed how much more intelligently, so to speak, this material was used through Germany.—Mr. Fowler, senior, confirmed this by some instances.

"Once get the brick duty off, as you have already said," urged our companion, "and improvement in the use of the material would be certain to follow. Only those who have themselves seen the hovels in which the rural poor live, and the demoralization resulting from the want of separate sleeping-rooms, can rightly appreciate the importance of removing this impost, which increases so immensely the cost of decent dwellings. Apropos of Mr. Fowler, whose name you mentioned, the verdict in his case, reported last week,† was surely unjust, and contrary to the summing up of the Chief Baron."

\* Messrs. James Bell, Andrew Moseley, and John Whitchord, were removed from the class of Associates to that of Fellows: and Frederick Lawford was elected an Associate.

† See p. 79, ante.

It unquestionably seems so. The amount of outlay on which the commission was to be paid was fixed at 40,000*l.*, to carry out the design so far as then determined on; but this surely did not justify the magistrates when they determined on further works—works not contemplated by the original drawings, but additional—in refusing to pay the architect for his trouble in designing and superintending them.

"Competitions seem always to bring trouble. By the way, can you tell me anything about the designs submitted for St. Thomas's Church, Newport? A friend of mine, resident in Cork, has written me a letter on the subject, which does not agree at all with the statement in your journal of January the 12th. He says,—

'A young lad, who has been a couple of years assistant in an architect's office in this city (Cork), stated publicly some time since that he had furnished plans for a new church (St. Thomas, Newport), which plans had won the premium of 50*l.* A perspective design has been lithographed and extensively circulated in Cork, under which is printed—"New Church of Saint Thomas, Newport; John Jones, Architect. This design won the first premium of 50*l.*" The design is a mere copy, and such as, I am sure, could not succeed in any reasonable competition, where talent of any pretension is exhibited. I should like to know the truth of the matter, and if the "boy Jones" is revelling in a reputation surreptitiously obtained, it is but due to all parties to expose the matter.'

Has the matter been decided?" continued our visitor.

Of the lithograph you speak of we know nothing; certainly, however, no such name as Jones was amongst the favourites, and the decision has only just now been made in favour of Mr. Dawkes, by a majority of twelve to eight. Some of the opponents of the successful competitor say they intend to remember that he has stated his design could be carried out for 6,000*l.*

"Ah, the old story, I suppose. And what about the competition for re-arranging that very interesting church in Norwich,—St. Peter's, Mancroft,—advertised in *THE BUILDER*, a few weeks since?"

That also has been decided. The plans sent in were numerous, and the committee, on Tuesday in last week, selected one by Mr. R. M. Phipson, as best adapted to their views. The estimate of the entire expense here is given as 1,580*l.*, and it is intended to commence at the east end of the church, and progress westward as subscriptions flow in. It appears that the Rev. Charles Turner, Minister of St. Peter's, Mancroft, although a subscriber of 20*l.* towards the fund, stated that as the sum required exceeded 1,200*l.* (the amount contemplated), he would become an additional donor of 50*l.*, if the requisite number of other donors would join him with similar sums. According to the design, the upper part of both aisles will be separated by parclose screens, and the organ will be removed within the arch at the west end. Our informant, I may tell you, says that it is proposed to establish a society at Norwich, on the plan of the Cannynge Society, at Bristol, to aid in obtaining the complete restoration of this church.

"And what have they determined on at Bradford with regard to the plans for the new workhouse there?"

Why there also they have come to a determination. After long battling on most unsound points, the Committee have decided in favour of a design by Messrs. Lockwood and



Mawson. The building, we understand, is to be a six-class workhouse, to accommodate 300 inmates, with capability for future extension in case of need, and the cost, inclusive of site, is put down at nearly 10,000*l*.

"Well, now let us talk of something else. Have you read 'Shirley'?"

#### PROFESSOR COCKERELL'S LECTURES ON ARCHITECTURE, AT THE ROYAL ACADEMY.

THE professor, in his fifth lecture, Jan. 31, reminded the students of the dictum of Wren, "that the principles of architecture are now rather the studies of antiquity than fancy;" whoever, indeed, undertakes the pursuit of this venerable science must discover in it the same fixity which the great moral and physical laws of nature have preserved from the beginning. History displays in every page of the generation from Adam, the same identical motives and aspirations in respect of this art, which our own hearts confess in more or less intensity at the present day. The materials of stone, wood, and iron, and the mechanical and physical means, are the same in principle, however enlarged and developed by experience. Man himself, the days of whose years are so limited, the half of his brief existence spent in pupillage, must be the creature of imitation, and is exposed during periods to be the mere victim of the fashion of opinion—fluctuating and various. On the whole, a concurrence of judgment approves and establishes forms and powers, the alteration of which it is presumptuous to attempt, however they may be developed and improved.

The old sin of pride and presumption denies these doctrines, and, akin to the promptings of the Babylonians, "Go to, let us make us a name; go to, let us build a tower, whose top shall reach unto the clouds,"—we have modern aspirations after a new style, and a catholicity of that style imposed on the public; but when we ask its principles and description, it sinks, like the Babylonian tower, into a vision, of which they themselves have lost the tracings. Such overweening conceits can lead to no practical good, and any attempt in the student to reduce them to paper, in a tangible form, will savour of aberration, and lead to a strait waistcoat,—he will never persuade mankind to follow his inventions unless they are founded on their experience and their previous acceptance.

In the practice of our art abundant occasions of originality arise in the new wants of society, and in the new materials furnished us by the sciences, especially in these times; and in their new adaptation to cases, requirements, and circumstances, there is always abundant space for invention, properly so called. The public, and even we, as artists, too often mistake the form for the thing, the ornament for the substance. No man was more original than Wren, according to the above definition, but inasmuch as he used the classical orders, he is esteemed only as a copyist. Wren sought the essence of the requirement, the true principles, the just idea of the design proposed. He made all bend to these; the dress, the wig, and the ruffles he applied as a matter of course, and in deference to the fashions of the day. He, no doubt, largely admitted the motto of his contemporary, Mr. Pepys, "*Mens cujusque, is est quisque*." The student should well consider these examples, and no lack of inventive opportunity would be complained of. The mind of the work was one thing, the decoration was another; as different in true nobility as soul and body; and the first need not be suggested as the highest subject for his contemplation. These visionary aspirations after novelty, derived chiefly, in fact, from the abuse alluded to, the adherence to the form and not the matter,—this seeking after exterior fashion it was that made us Roman, Greek, Gothic by turns, as if their reproduction alone constituted architecture; and this disgusted sickened the amateur, who could not penetrate to the soul of the work within, and made him call for novelty.

The proofs of this fact abounded—churches were Grecian, and for the last twenty years have been Gothic—intensely Roman Catholic; the sense has been wanting to understand,

that we do not want a Greek temple for the reception of a carylephantine statue; nor a Roman church for processions, and a sight only of the Eucharist, but a Protestant auditorium suited to Anglican ritual; to which great purpose all form of dress, of whatever order and fashion, must bend and adapt itself; and whoever studied the unvarying principles of the sublime and beautiful, will adjust this dress in such manner as to reconcile the forms and the requirements the great masters have always found.

There was some excuse for our folly in the ignorance which half a century of war had plunged the fine arts into; but now for more than thirty years we have studied the arts of peace, we had recurred to all sorts of examples which furnished the beautiful, and like novices had endeavoured to reproduce them by turns, doggedly. The next stage was, to see if in each of these the same principles were not latent; and so by studying principles we should emancipate ourselves from the puerile fetters of imitation.

Having traced the elementary materials of architectural composition, the professor proceeded to the combination of the whole, and in this, together with unity and order, the principle of *gradation* was one of the most essential; the repetition of the same elements in different dimensions was the only way to convey one end of proportion, viz., magnitude; in the green leaves of the wild rose tree, as compared with the garden tree,—in the human hand or fingers, as compared with the monkey's, an admirable gradation of the same feature is observable, the relations of which it behoved us carefully to measure; in the use of columnar or arched architecture this was the great secret of success, especially understood by the Greeks, by Palladio, and the Goths, so called; and this was illustrated by some scenic drawings from various sources, and especially the labours of Canina.

Material magnitude was as nothing compared to the relative magnitude, obtained by gradation of parts. The historical painter of a group, and the decorative painter of a series of flowers and fruit, would take care to gradate the elements of his composition, and there was no principle more fundamental.

It was on this principle that domes, as in the admirable group at St. Maria della Salute at Venice, and the spires at Litchfield, gave so much pleasure and magnitude; comparison by gradation enabled us to estimate composition; pleasing variety and grouping were delightfully displayed in both these examples. No single element was large or small but by comparison, and comparison with forms of its own nature was the best. Trines (as at Litchfield) were advantageous; he must, therefore, condemn the single tower of our modern churches; he had hoped to find a composite work in a great town which had recently built a great church; when he at length found the eternal lithograph, by which every architect advertises his work in these days, there, to his disappointment, was the single tower, attenuated, indeed, because not fed with a lusty peal of bells as formerly, but still a staring tower—always the same—the size not estimated because it had not other towers or objects of gradation.

Whatever might be said against Queen Anne's churches, it was certain, he thought, that for appropriateness to ritual and architectural invention, as to structure and composition, nothing done since them in this country could compare with them.

#### SINKING FUND FOR PUBLIC WORKS.

By the time our next publication will have appeared, the minister's scheme for carrying on the business of the Office of Works will probably have been placed before the public: what that proposition may be of course is at present veiled in obscurity. It is hoped that it may comprise some of the features in the plan suggested some few weeks since. It will be remembered that it was suggested to place under a separate and independent commission all new works sanctioned by Parliament; that the cost of the same should form a separate stock, or fund,—the interest and the further sum necessary for its redemption, after a lengthened period, being the annual charge to be pro-

vided by Parliament; thus, for instance, instead of charging the country, within a period of fifteen years, the whole expense of the Houses of Parliament, it would be perhaps annually 6 or 7 per cent. upon the outlay,—a charge scarcely to be felt. This important work might be carried out to the great advantage of the country, by the employment of thousands, and throw upon our posterity a reasonable burthen for advantages possessed. The office of "Works" will be separated from that of "Woods." Lord Carlisle will, we believe, leave both.

#### A GLANCE AT THE NELSON MONUMENT.

OF Nelson, a name dear to every true Briton, the memory is here embalmed in the heart of London, and the public waits with patient watchfulness for the three halting illustrations of his brilliant exploits, which are destined for the base of this column.

Occasionally, since the removal of the *velum*, I have paused before the sculptured *chef-d'œuvre* which faces the Admiralty, and which appropriately describes what, in early ages, might be called the apotheosis of the hero (a work that must assure every lover of the arts that there is talent in the land, of that pre-eminent merit which, if encouraged, might class us on a parity with any nation), and it has amused me to hear the passing and sometimes wayward remarks of the peripatetics—as thus: "How bold," said one damsel to another, "how beautiful, how truthful, are these castings! How well judged the legend—the last words of the great commander—*England expects every man will do his duty*!" A tar and his mate succeeded the young ladies, eulogizing, in technical phraseology to which I cannot do justice, the compacted but well-defined groups of sailors and marines, to whom, next to the admiral, they imputed the victory, only regretting that his Honour did not come into port to be paid off and receive his prize money." An old lady, following on the gangway, remarked to a very reverend-looking ecclesiastic, with a shovel hat,—"My dear, if this sterling metal were distributed to curates on short commons, or to the children of our school, how much good would result from the bounty! however, it is a work of passing merit, but wherefore put these words in gold letters?" It would appear that the monument were needed,—that men now-a-days are reluctant,—or that Nelson's last words were forgotten!"

Another lady condemned the legend altogether, as an intrusion on the simplicity that should characterize sculpture, vowing that the motto would be as appropriate on a *garret* for Achilles as erected by the ladies of England!

Many were the reflections uttered, for none passed by in silence; some even observing on the artist's name, which he had bronzed over, seeing that the gilder had also emblazoned it, by mistake or in compliment.

Rumours and reports were uttered as to the Commissioners of Woods and Forests; these I suppress, being unwilling to expose some *tinkering and Gothicism done on the work* which has come to my knowledge.

With respect to the artist's name, let me only observe, you can read it on our coins, on our pictures, always on our literary works; and it occurs to me that, although Lysippus would not sculpture his name on the figure of a Venus, he might on the pedestal. Times are past when the tyrant ordered his titles on the entablature of the Temple,—when the artist, to insure his fame, graved his own on the stone, and that of the monarch on the plaster above it. QUONDAM.

ST. MARY'S, TAUNTON.—The editor of the *Somerset Gazette*, after extracting our notice of the evil effects of iron on Wrington Church, points to the tower of St. Mary's Church, Taunton, as affording another instance of the mischief so done, and urges, as we did some time ago, that this structure should be attended to.

\* We heard an old sailor, who served with Nelson, take two technical objections the other day to Mr. Carew's very able work, which may be worth inquiry. First, he pronounced against the possibility of a spar coming into the position of that shown in the sculpture; and secondly, as to the negro with a musket in his hands, that no black in that ship was permitted to use fire-arms.—Ed.

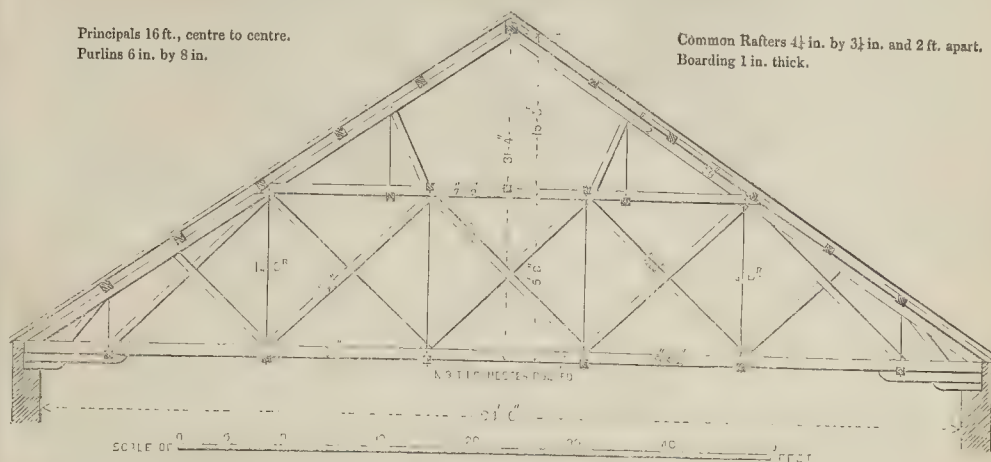
† Since bronzed.



## ROOF OVER BOSTON DEPOT OF BOSTON AND ALBANY RAILWAY.

Principals 16 ft., centre to centre.  
Purlins 6 in. by 8 in.

Common Rafters  $4\frac{1}{2}$  in. by  $3\frac{1}{2}$  in. and 2 ft. apart.  
Boarding 1 in. thick.



## ROOF OF THE BOSTON AND ALBANY RAILWAY.

This roof is a very good specimen of American carpentry. It is remarkable on the score of the simplicity of its framing, and the co-relation of the scantlings to those of the lumber brought to Boston.

It must be borne in mind, in examining any American construction, that the price of skilled labour is so high, that the efforts of their architects and engineers are always directed to simplify the mechanical execution. We must not then seek for elaborate framing, nor economy of material. The price of the latter is often insignificant when compared with that of its conversion; but in all cases the scantlings are made to suit those of the usual supply.

This roof is covered with Welch slates, and it has often to support a great weight of snow.

## ON THE LIFE, THE GENIUS, AND THE WORKS OF GIACOMO BAROZZI DA VIGNOLA.\*

UPON the principle so well laid down by Milizia, "That the best method of praising able artists is by making known their works," I will now proceed with a few remarks upon the executed works of Vignola at Rome, commencing with the little church of Sant. Andrea a Ponte Molle, on the Via Flaminia.

The building was erected by Julius III., in commemoration of his escape on St. Andrew's day, 1527, from the German soldiery during the sack of Rome; and among the various inscriptions in the adjoining Villa di Papa Giulio, Boissard gives the following as connected with this church:—"In the neighbouring temple let thanks be given to God and St. Andrew; and let them (the visitors) pray for abundant health and eternal life to Julius III., Pontifex Maximus, to Baldwin his brother, and to their whole family."

This church is of a rectangular plan, of very moderate dimensions, and is chiefly remarkable for its resemblance in general exterior character to some of the small Roman temples. There is a great charm and beauty in the simplicity of the design, and the elegant details all bespeak the most careful study. Milizia in his brusque way has some smart criticisms upon it, acknowledging at the same time that it was a work generally praised.

In the immediate vicinity of the church of St. Andrea is situate the Villa Papa Giulio, commenced in 1550, by order of Julius III. I will not occupy the time of this meeting by a description of this building,—with which, probably, nearly all present are familiar,—either with the building itself, or the charming illustrations of it by Percier and Fontaine. I cannot, however, resist the observa-

tion that for the harmonious arrangement of the plan, for its style and character, for the refinement and delicacy of the enrichments, it is a model of suburban architecture. Ammanati in his fountains and ninfeo, and Zuccheri in his beautiful paintings of the porticoes, have contributed much to its effect, but it is to the master-hand of Vignola, which guided and directed the whole, that we must award the palm.

My friend, Mr. James Morant Lockyer, who has with great credit given much attention to the study of numismatics, more particularly in reference to architectural representations upon medals, has kindly lent me a medal of Julius III., engraved both in Stern's and Letarouilly's works, upon which the Villa Papa Giulio is shown with two small cupolas surmounting the circular staircase and corresponding wing building. The effect in the medal is so successful, that I am induced to wish these lateral cupolas had been introduced in the building itself.

Near to the Villa Papa Giulio is the Vigna Giulia, and from their close vicinity and the resemblance in the names, the one building has sometimes been taken for the other in the works of Vassari and other authors. I am inclined to think the hand of Vignola may be traced on this latter building; it is an extremely picturesque composition, and quite worthy of him. Letarouilly has treated this subject in his usual perfect manner, and he ascribes the design to Sansovino and Peruzzi. Giorgio Vassari states that he himself was the first who designed it, adding rather indignantly, "that he was not one of those who made designs to please the capricious fancy of the Pope, and which were afterwards obliged to be corrected by Michelangelo and Vignola." From this passage it would almost appear that Barozzi was really concerned in the design, but I have no doubt so careful an author as Letarouilly has good reasons for attributing the work to Sansovino and Peruzzi, and I am only doing justice to these two great architects in observing that the work in question is, at all events, worthy of Vignola. The Villa Lanti, at Bagnaia, near to Viterbo, has also been ascribed to Vignola: it resembles his style, but it is not sufficiently refined and pure for that master.

At the Palazzo Farnese, Vignola executed the magnificent apartment so well known as the Caracci Gallery, with a portion of the Cortile, together with the decorations of several doors and windows, the most satisfactory details of which will be found in Letarouilly, who has also given as the works of Vignola the lateral porticoes or loggie on the Capitol, the small Palazzo Spada in the Via di Capo di Ferro, the Palazzo Nari, and a small palace at the extremity of the Piazza Navona. We have also the celebrated doorway of "San Lorenzo in Damaso."

In reference to the entrance to the Farnese Gardens at Rome, I will again refer to the useful work on doorways by Professor Donaldson: "It is useful, however, to consider whether this is an example to be entirely followed without reserve; certainly not; but there are so few blemishes to remark, that it may appear almost unnecessary to notice them. It must be allowed, however, that the columns require being elevated above the level of the ground by a plinth. The rustications of the columns may be somewhat objected to as not sufficiently pure, but the harmony of the whole composition would have been destroyed had they been without: the attic is not sufficiently high,—its proper proportions would have been to have equalled the entablature in height; this would have raised the plinth more above the cornice, and prevented its being intercepted by the projection of the latter. Some subsequent architect, with a taste as profane as it was daring, has introduced above this capo d'opera of Vignola an attic, with caryatides, deteriorating materially its effect, and causing the deformity to be attributed to our great architect."

Now Milizia, who is generally not very sparing in his censure, is not quite so indignant as the writer whom I have just quoted with respect to this "profane addition;" he merely says, "Ma l'attico con quelle cariatidi è troppo grande," and upon referring to my own rough notes I find that I was innocent enough to treat it as one design. Many, however, I dare say, will consider that the author of the work on doorways has, in this instance, proved himself the best critic of the three, and that the addition must consequently be condemned as—

"A blot that will be still a blot, in spite  
Of all that grave apologists may write."

At the death of Michelangelo, in 1564, Vignola, in conjunction with Pirro Ligorio, was elected as his successor as architect to St. Peter's, with the strictest injunctions from Pius IV. not in any way to alter the design made by Michelangelo. Vignola's coadjutor, however, thought proper to disobey these commands, in consequence of which he was dismissed, and Vignola remained as sole architect, and he so continued for the space of nine years, up to the time of his death. The lateral cupolas are his, and are well worthy of his master-hand. Milizia's praise of them is as concise as it is expressive:—"Sono del Vignola e sono belle!" I am inclined to the opinion that no other part of St. Peter's was designed by Vignola, but that he merely put in execution the designs of his great predecessor.

Through the patronage of Cardinale Alessandro Farnese, Vignola was appointed architect to design the important church of the Jesuits. This great work was commenced in 1568: its

\* See page 74 ante.



plan is that of a Latin cross, the length 216 feet, and the width 115 feet. The building was only carried up as far as the cornice by Vignola: it was completed by Giacomo della Porta, or according to Milizia, "Il resto fu esagerato da Giacomo della Porta."

The garden front of the Pallazzo dei Fiorentini, in the Campo Marzo, is attributed to Vignola: it is a graceful composition, and has lately formed the subject of a work by the Cavalieri Folchi, a copy of which has been presented to the Institute by the author during the present session.

The two lateral loggias of the Capitol are attributed to Vignola by Letarouilly: they are of extreme grace and simplicity, and their effect considerably enhanced by the grand flights of steps upon which they rest.

The Porta del Popolo is also said to be by Vignola; it is not, however, a very first-rate production, and I am not particularly anxious to claim it for my favourite. Some contend that the front only towards the Via Flaminia is by Vignola, and that towards the city by Michelangelo.

I am not aware that there are any other important works at Rome by Barozzi requiring notice. Mr. Donaldson has suggested that parts of the Villa d'Esté at Tivoli, particularly the central loggia of the front next the gardens, are by his hand, and I am inclined to the same opinion.

Of Vignola's works at Bologna, my friend Mr. Newman, who was there last year, has kindly lent me a sketch of the Loggia dei Banchi, a wing of San Petronio. Mr. Newman is of opinion that the façade was altered only, and not altogether designed by Vignola; the lower pilasters without bases, and the proportion of the arches induce a belief that the upper part alone must be attributed to our great master. Mr. Newman has also kindly furnished me with a powerful sketch of the palace built for Achille Bocchi. This is a noble production, and a glorious example of Vignola's genius for the grand and sublime, as well as the refined and elegant. Its massive grandeur reminds us of the Florentine palaces.

Of the great church, "Santa Maria degli Angeli," at Assisi, I regret I cannot speak from personal observation, but the difficulty has been obviated through the kindness of Mr. Donaldson, he having furnished me with a plan of the building taken by himself, in the year 1818. The dimensions are immense,—the extreme length inside the walls being no less than 347 feet, and the width 180 feet; but, notwithstanding this colossal size, I am far from considering it, in point of architecture, as the greatest work of Vignola; the plan presenting no new or striking features, and effect appearing to have been produced by magnitude alone. The first stone was laid 25th March, 1569, only four years before Vignola's death, and Alessi and Giulio Danti are said to have had the superintendence of the building after Vignola's designs.

In the year 1832 this church was considerably damaged by an earthquake, but it has been since repaired, and, at the present time, is not merely celebrated as the work of Vignola, but as containing a superb fresco, "The Vision of St. Francis," a capo d'opera by one of our own country, Overbeck.

Of the great ducal palace at Piacenza, I have no illustration. My friend Mr. Falkener informs me that it is by no means one of Vignola's finest productions. I will proceed therefore to bring before the notice of the meeting Barozzi's greatest work, Caprarola.

Near to Viterbo, and distant about twenty-six miles from Rome, stands this capo d'opera of Vignola. The situation, on the sides of Monte Cimino, is wild and romantic, commanding magnificent views on all sides, and presenting the most striking points as the spectator approaches. The bold and rugged site no doubt influenced the architect in giving that fortress-like character to his building, alike suitable to the situation and to the stormy and turbulent times in which it was built.

Vassari says that the original design for the fortress of Caprarola was by Antonio San Gallo, who had much practice in engineering and military architecture. I do not consider that this circumstance at all detracts from the merit of Vignola's subsequent share of the design, for it must have acquired as much (if not more) skill to adapt his palace to San

Gallo's foundations as to have originated the palace fortress itself.

The plan is pentagonal with bastions at the angles, and while thus partaking of a military character the architecture of the elevation is civil and palatial. Terrace surmounts terrace, the one communicating with the other by noble wide flights of steps. The basement is raised upon its sub-basement, excavated from the solid bed of rock, while two beautiful orders, towering proudly above these masses, surmount the pile. Grandeur and sublimity reign without; beauty, grace, and harmony preside within. Well, indeed, might old Daniel Barbaro exclaim, when the first view burst upon him, "La presenza è maggior della fama."

The arrangement of the plan is a masterpiece of skill; the circular court one of the most charming and harmonious compositions ever devised. The spiral staircase, with its ascending stories of columns and pilasters, perhaps unrivalled in the world; and while we gaze in admiration at the expanse of mind which conceived so great a work, our eye, as well as our imagination and taste, are more than satisfied with the exquisite refinement and purity of the details. Many years have now passed since I saw this grand specimen of Italian architecture, but I have a most vivid recollection of the strong feeling of admiration it produced on myself and fellow travellers.

Giorgio Vassari, in his Life of Taddeo Zuccheri, has given a minute account of this celebrated building, describing the various apartments with their superb embellishments by the brothers Zuccheri and by Tempesta, as well as several perspective views by Vignola's own hand.

In Le Bas and Debret's work upon the edifices of Vignola will be found the most architectural account of Caprarola. Some of the decorative paintings are given by De Prentner in a fine work entitled "Illustri Fatti Farnesiani;" and the plans and sections and elevations will be found also in "Rossi's Studio d'Architettura Civile," and in Percier and Fontaine's "Maisons de Plaisance de Rome." These celebrated French architects have also included the building in the grounds termed La Palazzina, the refined beauties of which are most elegantly and faithfully represented by them. The happy expression of Vassari with respect to the Villa Farnesiana at Rome, "Non murato ma veramente nato," would in all respects apply to this Palazzina, one of the most exquisite creations of the refined taste and imagination of Vignola.

I have already made some mention of the part Vignola took in the designs for the Escorial; how far that gigantic royal convent has been erected according to the design furnished by our architect it is difficult to say. The plan now exhibited belongs to Mr. Donaldson, who, following Milizia, attributes the design to Juan Batista di Toledo. It appears that the palatial bears but a small proportion to the ecclesiastical part of the edifice, which, as a whole, has not been unhappily described by Beckford as being "at once a temple, a palace, a convent, and a tomb."

Vignola has not merely instructed us by his executed works, but he has left a guide for all time in his admirable treatise upon our art. To him we are indebted for rules, proportions, and maxims, the result of a careful study of the architectural remains of ancient Rome; and, although this great master has founded his orders upon the antique models, he was no servile copyist or imitator, but proved himself as eminently successful in his original productions as he was in his adaptation of the remains of antiquity. His beautiful and original introduction of consoles connecting with the modillions in a crowning cornice has been frequently imitated in continental buildings, and in our own country by Wren, at St. Paul's, as well as by many other of our principal architects of the past and present day; his playful adaptation of ornaments over his doors and windows, and his ingenious and bold application of rustics, afford us examples of originality well deserving our attention and study.

In some valuable remarks on the genius of this great artist I entirely concur with Mr. Cockerell, who has observed that "Vignola was sparing in the use of the orders, not lavishly employing them in a vulgar and common manner, but applying them rather as precious decorations to be tenderly and

delicately treated; he relied much upon his door and window dressings, making his window openings extremely small, thus giving great breadth and scale to his façades. The introduction and treatment of rustics in his portones is most masterly, frequently uniting them with the string course of the piano nobile. For his door and window dressings he stands unrivalled."

It is too much the fashion of the day to underrate the value of the study of classic architecture and its revival under the great Italian masters; some are for an extensive and nearly exclusive application of mediæval architecture, while others are for forming a national style of our own, which should have the merit of "being something new." The acute and strong-minded Forsyth remarks upon this point, "I do not indeed admire the philosophy which has lately broken into architecture, nor the contempt so often affected for Vitruvius. I would not subvert the authority of example, nor be too severe upon the ancient superstitions of the art. Their very antiquity, if it does not satisfy our reason, has a charm on the fancy, and they fill up a space which our reverence for what is old would make it difficult for a reformer to fill up more pleasingly." And with equal force has it been observed by that most eloquent instructor of Art, Sir Joshua Reynolds, "Invention is one of the greatest marks of genius, but if we consult experience, we shall find that it is by being conversant with the invention of others that we learn to invent, as by reading the thoughts of others we learn to think."

In these days we have every possible facility and inducement held out to us for the attainment of a thorough knowledge of our art. Upon the opening evening of our present session, the Gothic architecture of Germany was graphically described and analyzed by one of the first scholars of our times, the master of Trinity College, Cambridge. Our professors' chairs are filled by the most able instructors. We have excellent weekly and monthly publications affording us both scientific and practical information. Our museums are daily being enriched with sculptured remains from the most ancient cities in the world. We have societies devoting their time and energies to the publication of architectural stores which have hitherto been confined to the few, and nearly unknown. The wonderful architecture of Southern India has been brought to our view and described and commented upon with the most profound learning; while the Oxford graduate steps forward with all the advantages of sound scholarship, intellectual mind, and poetical imagination, to enlighten us with his "Seven Leaps of Architecture."

My own impression is, that each different style has its distinct and separate beauties and features, and it is not by a blind adherence to one particular school for all purposes, but by a proper adaptation of the style we may select for the object to be attained, that we can command success.

I would not for one moment be supposed to detract in the slightest degree from the great merit of many of our rising architects, in the admirable designs and structures they produce in imitation of the ecclesiastical and domestic architecture of our forefathers; and the experience of the last ten years has proved to us that their success progresses with their knowledge and research. A similar persevering study of Italian examples would no doubt produce similar satisfactory results; and as the broad square and the porch of the thirteenth century may not possibly be found suitable for every street or square in the metropolis, or in our provincial cities and towns, I should rejoice to see the studies of our young architects also directed to the spires of our own immortal Wren, to the cupolas of Brunelleschi and Michelangelo, and to the works of my favourite Giacomo Barozzi da Vignola.

SAMUEL ANGELL.

TO DESTROY ANTS.—Inquiries for means to rid houses of ants being still made, we add one other prescription to those which have appeared, but are unable to guarantee its efficacy. Our communicant, however, says,—A solution of alum and potash in hot water, applied boiling hot to the spots infested, will prove an effectual cure.



## HOW THEY BUILD WORKHOUSES IN IRELAND.

For some time past I have contemplated the necessity of calling public attention to the auxiliary workhouses in Ireland. The late frightful catastrophes in the Killarney and Limerick Unions have impelled me to put my resolution in force, that public opinion may be awakened respecting those dens of disease and wretchedness, where thousands are crammed like negroes in the hold of a slave ship, without the smallest regard to the decencies and necessities of existence.

You must know that in Ireland, owing to the melancholy increase in the pauper population, the original workhouses have been found quite insufficient to accommodate the applicants for admission: the consequence is, these buildings, termed auxiliary houses, have been procured, into which the surplus poor have been stowed. It is with these I have to do. When such additional accommodation is required, the *modus operandi* is as follows:—The guardians advertise for premises, tenders are sent in; every one in the district having a dilapidated corn store, a ruined mill, or three or four tumble-down houses, brings them forward,—any place being good enough for paupers, and the cheapest in the eyes of the guardians being the best, a selection suitable to these ideas is made.

Do they seek professional advice as to the state of the premises, or their eligibility for the intended purpose? No such thing. In nine cases out of ten, suitable assistance is not sought; the master of the workhouse, the doctor, or some busy-body guardian, who fancies he knows something about buildings, are the only parties consulted. Upon their judgment is the concern turned into a workhouse; and alterations are made, involving large outlay, which, through the ignorance of those overseeing the matter, is completely thrown away. Sometimes the master of the union is the architect and inspector, who orders timber largely, and pockets the poundage; while those necessary adjuncts to health, light, ventilation, sewerage, and cleansing conveniences, are scarcely ever attended to.

Three, five, and seven hundred individuals are sometimes stowed into these rotten lofts, where there is scarcely more than room to stand upright. Nine out of every ten of these auxiliaries, in the south and west of Ireland, are corn stores, or old mills: every one knows what are the characteristics of these buildings. They are generally from four to six lofts high; the general height from floor to floor is 7 or 7½ feet; the apertures are few and small, in thick walls; the communication is from loft to loft by a step-ladder; sometimes a staircase is constructed, the general size and formation of which may be taken from the Limerick auxiliary, now infamous for the late melancholy catastrophe. Fancy one of these five lofts high, with a hundred beds on each loft: what a state of half suffocation they must exist in! consider they have no ventilation but what they get through the aforesaid windows, which at night must be closed up,—no escape for foul air, no admission for fresh,—and it will give you an idea of what disease and death are engendered in these Irish slaveholds. The medical reports of the unions will amply testify to the truth of my statement; but we count human life so cheap in Ireland, that these things are taken no notice of. Had the Killarney guardians availed themselves of proper advice, the paupers would not have been precipitated through the rotten lofts. The crushed and mangled remains of the Limerick victims will testify against the miserable and mistaken parsimony, that for the saving of an architect's fee, will entrust the providing and arranging of such edifices to ignorant and irresponsible parties.

Through you, Mr. Editor, I would call the attention of the Poor-law Commissioners, and all others concerned, to take instant measures for the prevention of such fearful calamities, as well as of the silent havoc that takes place, from the neglect of sanitary precautions, in the appropriation of these buildings to purposes they never were intended for. The appointment of travelling inspectors would be a good step, not young military officers, but intelligent, properly-qualified professional men, to report upon all such

auxiliary houses, their present condition as respects soundness of construction and efficiency of sanitary arrangement, and to suggest and point out all necessary improvements, as also to report upon all places intended to be used for such purposes.

Indeed, the common sense of the matter would be to erect additional workhouses, and get rid of the separate staffs required for working these small houses (three and four of which are in some unions), as well as of the risk attending such bad and unsafe accommodation.

CORCAGIENSIS.

## NOTES IN THE PROVINCES.

A COUNTY court and police station is about to be erected at Stowmarket. Messrs. Rednall, Betts, and Andrews, of Stowmarket are the builders, under the direction of Mr. Frederick Barnes, architect. The contract for repairing the walls and roof of St. Michael's Church, Cambridge, has been taken by Messrs. Quinsee and Attack, at a sum of 1,300*l.* and upwards. The repewing and other alterations must form a separate contract.

—At an influential meeting at Oxford, resolutions have been passed in favour of the establishment of baths and washhouses there, and about one-third of the requisite sum (3,000*l.*) has been already promised. The Salisbury directors of highways propose to adopt some means for a general improvement of the drainage of that city. It is proposed to form a public Water-works Company at Winchester, with a capital of 15,000*l.*, in 750 shares of 20*l.* each; and to purchase the present works for 12,200*l.* The contract for erecting the new Exchange, at Wolverhampton, has been taken by Messrs. Lilley, of Measham. The tenderers were—Messrs. Heritage, 5,465*l.*; Briggs, 5,262*l.*; Dickson, 5,110*l.*; Higham, 5,084*l.*; Cockrill, 5,050*l.*; Elliott and Ford, 4,997*l.*; Millington, 4,975*l.*; Hembrow, 4,646*l.*; Ede, 4,617*l.*; Hill, 4,451*l.*; Jarrow and Waterfield, 4,390*l.*; Green, 4,250*l.*; Watson, 4,137*l.*; Lilley, 4,045*l.*; Higges, 3,990*l.*—It has been resolved by the wardens to rebuild the spire of St. Martin's Church, Birmingham. A subscription is, it appears, to be first tried, and one of the wardens, in announcing the circumstance in the local *Journal*, says, "By limiting our first effort to the spire, we by no means shelve the general restoration of the edifice. Should any friend who sends us one 5*l.* for the spire, send us another for the taking off the brick greatcoat by which the stone church of St. Martin's is kept warm, we shall not return his money.—P.S. The honour of sending the first 5*l.* is yet open to competition; and when some future *Hutton* records the restoration of the church (I beg pardon, the spire), he will surely not omit to add, 'Mr. or Mrs.—contributed the first five pounds.'"

St. Peter's Church, Sackville-street, Everton, Liverpool, Mr. John Hay, architect, was to be opened on Thursday last. It is a Gothic edifice of the Decorated period. The length of the nave is 87½ feet by 26, aisles 73 feet, by 13½, chancel 38 feet by 21, chancel aisle, 21 feet by 14, vestry 13 feet square. The height of the nave to the ridge is 57 feet; the height of the steeple is 152 feet,—the tower of four stages, the last octagonal. The windows are traceried, and are to be filled with stained glass. The building is of hard red sandstone, pointed with black mortar; the ridges of roofs finished with crest tile, of fleur de lis pattern. Interiorly the nave is separated from the aisles by pillars and arches of polished red sandstone. The floor is laid throughout with red and black tiles, the chancel and aisle with a tile from Minton's manufactory. The benches are all open, with kneeling and foot-boards, and all moveable, for convenience of cleaning. The organ is to be placed in the chancel aisle. The roof timbers are exposed, and are of varnished Baltic timber. There are appliances for heating and ventilation. The church contains about 1,200 kneelings, and will cost 4,100*l.*, exclusive of iron railing, on low wall around the building.—The sum of 1,711*l.* odd has been subscribed towards the erection of schools, for the dense district of St. John's, Liverpool, and a site has been secured in Great Crosshall-street, at a cost of 1,365*l.* The school building itself is to cost about 1,500*l.*—It is proposed to erect a

church at Embay, near Skipton, on a site given near the old foundation, laid in 1154.

—One of the town councillors of Bolton lately exhibited in council, a plan for a new market, proposed to be formed on a site near the centre of the borough, as laid down on the Ordnance map. On this plan, he said, there could be 314 shops, 22 lock-up shops, 98 stalls, 14 shops, and 36 stalls for fish; 10 shops and 32 stalls for butter, &c.; and 12 shops and 90 stalls for butchers, at a cost of 28,000*l.*; and the plan was one that could be extended.

—At Exeter, the new post-office in Queen-street, is nearly completed. It has attached columns of Corinthian, placed on a basement, slightly infirm in appearance (people say), from the great size of the central archway, and a large window on each side. An architect has not been regularly employed.

## THE NEW METROPOLITAN SANITARY ASSOCIATION.

THIS influential and important association, lately formed at a meeting noticed in our columns, is already actively at work with the powers that be for the attainment of the beneficial and urgent ends for which it has been established. Since its formation powerful deputations have been in personal communication, first with Lords Carlisle and Ashley, as heads of the Board of Health, and still more recently with the Premier himself. At the interview with the latter, the Bishop of London headed the deputation, and submitted to Lord John Russell the resolutions passed at the initiative meeting, at which the old London, the Tower Hamlets, and Health of Towns Associations had merged into the new Metropolitan. The objects of the association were of course pressed on the attention of his lordship, as the Premier of her Majesty's Government and a highly influential member of the legislature; and the bishop's appeal was seconded by various other speakers, among whom were Messrs. Slaney and Wyld, M.P., the Rev. Dr. Cumming, Dr. Gavin, one of the secretaries, and others. The reply of the Premier was to the effect that the subject constantly engaged the attention of the Government, and that Lord Carlisle had been in constant communication with him upon it,—that the jealousy felt about interference with local rights, &c., presented difficulties in the way of the success of any one general measure, but that the best attention and the deepest interest of the Government were engaged in favour of separate measures that might secure the same end without the numerous risks of defeat on the separate clauses in any one general measure.

The association has since issued a circular, earnestly recommending the formation of branch associations in the various parishes or districts throughout the metropolis. Sub-committees for investigating various branches of the subject have been formed; and apartments are engaged at the Ship Tavern, Charing-cross, where attendance is given daily.

ORNAMENTED BRICK CHIMNEYS.—How is it that we seem entirely to have lost sight of that beautiful portion of old domestic architecture,—the ornamented brick chimney? Surely there is nothing more handsome than the examples at Hampton Court, Thornbury, Barsham, &c., and some few to be seen in the village of Audleyend, and elsewhere. Are there no districts in England where the clay is suitable, and yet where the stamped or moulded brick or tile would not answer the purpose of the speculator? In Staffordshire I have noticed an improvement, especially in the grand station at Stoke, but yet no attempt at the old pattern. Possibly I may only be recording my own ignorance; yet I have travelled much, and seen nothing modern of the kind, except in the Hall of Lincoln's Inn,—and there how successfully introduced! but those moulds were broken when the work was completed.—LINCOLNIENSIS.

\* Some were made recently on the estate of the Earl of Leicester, but we are not certain that their manufacture is continued. Let the tax on bricks be taken off, and art will then be applied in their manufacture.—ED.



## THE HOLY GHOST CHAPEL, BASINGSTOKE.

THE HOLY GHOST CHAPEL,  
BASINGSTOKE.

Any of our readers desirous of visiting some of the finest specimens of ancient ecclesiastical architecture to be found in the kingdom, would do well to take a trip by the South-Western Railway. It is not too much to say, that in few other parts of the kingdom can so many excellent examples be found in a like space. This will be seen at once, by enumerating those of the greatest importance,—such as the Cathedrals of Salisbury and Winchester, Romsey Abbey Church, Christ Church, the Church of St. Cross, and the ruins of Netley and Beaulieu. Many of these have been illustrated by us at different times, and we would now direct attention to the picturesque and beautiful ruins of the Holy Ghost Chapel at Basingstoke.

The following description of it is from the "Beauties of England and Wales," 1805:—

"The Holy Ghost Chapel is so called from its having been connected with a brotherhood or guild of the Holy Ghost, instituted by Sir William Sandys, Knight, afterwards the first Lord Sandys, and Fox, Bishop of Winchester, under a license from Henry VIII. This fraternity was dissolved in the first year of the

reign of Edward VI., and its possessions vested in the Crown; but in the first year of the reign of Philip and Mary a brotherhood was again established here, and the former possessions regranted, for 'the maintenance of a priest for the celebration of Divine service, and for the instruction of the young men and boys of the town of Basingstoke.' About the commencement of the reign of James I. the brotherhood became extinct, and during the confusions of the Civil Wars the chapel estate was seized by the Parliament, and the school shut up; but through the care of Bishop Morley, the estate was again restored about the year 1670. The site of this chapel is traditionally said to have been occupied by a religious structure from the period of the Saxon times; and although the present building is generally ascribed to the above Sir William Sandys, the opinion of a celebrated draughtsman and antiquary, Mr. Carter, seems to countenance the report of its having been erected much earlier. 'The style of the architecture,' he observes, 'appears of the day of Edward IV.' The design, though small, is much enriched, and among the ornaments are many with Roman and Grecian forms, which shows that examples of this sort had been earlier introduced among us than is

generally thought; however, it is not impossible but that many of the carvings, with some shields of arms, were added in the reign of Henry VIII., in consequence of repairs or alterations taking place. Camden describes it as having been erected by Sir William Sandys, and particularly mentions the roof as being excellently adorned from Scripture history. The only parts now standing (1805) are the south and east walls, with a hexangular tower at the south-west angle, in which was formerly a staircase. On the piers between the windows on the south side are long narrow pedestals with niches rising above them. The angles of the tower are similarly decorated; the walls are of brick, cased with freestone. The effect arising from the elevated situation of these ruins is beautiful. The building appears first to have been dilapidated in the Civil Wars, and has been almost entirely neglected ever since.

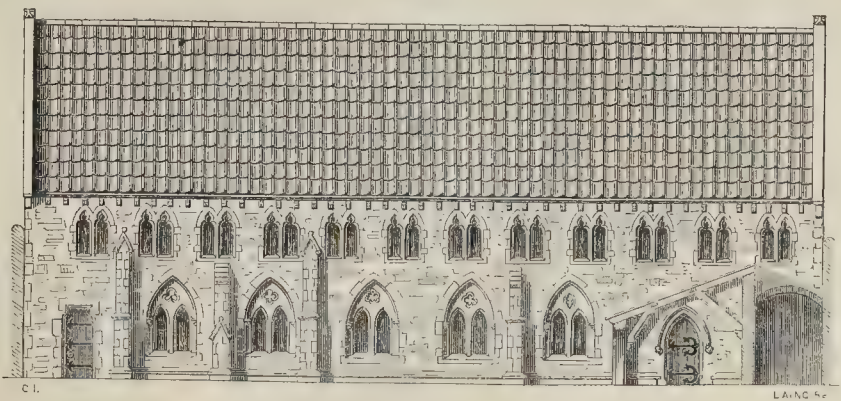
The large regular apartment to the westward of the chapel is supposed by Mr. Carter to have been the body of the ancient church, to which the chapel was attached, constituting the chancel or choir."

It will be seen, by the above extract, that there is some difference of opinion as to the



## THE FRIENDS' SCHOOL, BRISTOL.

MR. ARMSTRONG, ARCHITECT.



date of the building. Camden considers it to have been erected in the time of Henry VIII., while Carter ascribes it to an earlier period—viz., the reign of Edward IV. Against this conclusion of the latter there is much to be said; and one peculiarity in the construction of the building, which he afterwards notices, will go far to settle the question,—the walls are of brickwork, faced with stone. Now, as brickwork was not in general use until the time of Henry VIII., it is more than probable that this chapel was erected during the reign of that monarch; and we are confirmed in this view by the character of the ornamental detail, which is very late; some portions of it, indeed, might fairly be termed *debased*.

The state of the building is much the same now as in 1805. The whole of the ornamental detail is of peculiar delicacy, both as to design and execution. The pedestals and canopies at the angles of the tower are very curious, and would well repay attentive examination; those between the windows of the aisle are also excellent, but have not such varied detail. It may be as well to add the thickness of the brickwork, which is 21 inches.

The neighbouring building is now used as a school-room; it is evidently of a much earlier date than the chapel, but there is nothing of interest remaining; the supposition that it once formed a part of the same building is barely probable.

We refer those of our readers who would know more of Carter's opinion of this building to the "Gentleman's Magazine," November 1802.

## THE FRIENDS' SCHOOL, BRISTOL.

THE accompanying engraving represents the exterior of a building now possessed by the "Society of Friends," and used as a school. It forms the north-side of a quadrangle, and stands on part of the site formerly occupied by a monastery of Dominican Friars, founded by Maurice de Gaunt, in the year 1228. The church appears to have been of considerable extent and magnificence. The dimensions, as given by William of Worcester, are—Choir, 44 by 14 paces; nave, 58 by 34 paces. The cloisters extended 40 paces on four sides of the church. The remains of these have been recently restored, as well as a large portion of the ancient work in the present edifice.

The building consists of several class-rooms on the ground floor, and above, a large school-room of the entire length, having at the east-end a fine triple lancet window, and at the west a two-light Decorated. The roof is partly old, open, and of a good pitch. In the new portions of the building the prevailing style of the thirteenth century is carried out. The architect was Mr. W. Armstrong.

The building, with its ecclesiastical associations, contrasts strangely with the meeting-house hard by,—an unimaginative block, ex-

pressive alike of Quakers' Theology, and Poetry (albeit, the Muse never dwelt therein). It is, however, worthy of notice, as indicating the progress of architecture in the nineteenth century, that the Quakers, of all men the most indifferent to the claims of art, have caused to be restored, an ecclesiastical structure of the Middle Ages.

FILIVS ECCLESIE.

## BREAKWATERS.

SOCIETY OF ARTS.

On the 6th February, Mr. Jas. Walker in the chair, Mr. Findlay's paper upon Artificial Breakwaters was resumed.

Cherbourg Digue was the first work of this nature. The original projects to protect the road, in 1712, and in 1777, by a line of sunken ships, filled with stones, as at the siege of La Rochelle in 1573, were abandoned. In 1782-4 M. de Cessart commenced the present Digue, by building immense timber caissons, of a truncated conical figure, 150 feet in diameter at the base, and 64 feet high; 90 of these were to be placed tangent to each other, and filled with stones, but the wreck of the first two led to a change, that of placing them at intervals, and these intervals to be filled with stone, dropped promiscuously or *pierre perdue*; but they were all destroyed, with one exception, prior to 1789. In 1802 the work was resumed, upon the method à *pierre perdue*, and continued with varying success, till in 1832 M. Duparc commenced the present form, an upright wall or parapet, placed on the summit of the encroachment at low water, rising above high-water level. The Plymouth breakwater, commenced in 1811 by Mr. Rennie, and continued under the able superintendence of Mr. Stuart, was described. The protection of the base of the light-house, on the west end of the breakwater (which has always suffered most as explained), by means of a species of buttress, which Mr. Walker said was designed by Mr. Stuart conjointly with himself, was then mentioned. This erection involved a new principle in hydraulic architecture, afterwards alluded to.

A variation from the natural slopes formed on an artificial reef by the waves' action, by diverting their progress, was stated to be no new proposition. It was proposed in 1734 by M. Tournes, but not acted on. In 1787-95 the sea-walls of Cadiz were built by Don Tomas Munos,—an incline of timber planks, terminated by a concave face of masonry, which was destroyed by the rocks at its foot rolling up and against the masonry. M. Emy, who has argued for the existence of the *flot-du-fond*, proposed a cylindrical or cycloidal concave face for such works in 1818, very similar in section to those just mentioned. He successfully employed it at the Ile de Ré in 1820. Mr. Scott Russell's deductions, from his wave system, to the same effect, were alluded to, and an illustration of their nature instanced in the curved slope of the shingle beach, preserved

in the Dymchurch Wall, protecting Romney Marsh, and the action of the sea upon cliffs.

The upright wall, as executing at the Refuge Harbour, by Mr. Walker, at Dover, was next considered. This principle, established by the buttress at Plymouth breakwater, consists of stepping each course into the upper face of that beneath it, dovetailing each course horizontally, and alternate stones locking into the courses immediately beneath it, thus virtually forming a solid mass of stone. Some observations on the site of Dover Harbour as being free from silt, and, perhaps now, from shingle, concluded the paper.

## LANDLORD AND TENANT.

COULSON v. APPLEBY.

THIS was an action brought on Tuesday, in the Whitechapel County Court, to recover the sum of 71. 15s., for one quarter's use and occupation of a house situate No. 6, Upper Wellington-place, Wapping, from Lady-day to Midsummer last, beyond which period the defendant remained in the house five or six weeks, and left without giving notice.

Mr. W. C. Thomas, who appeared as counsel for the defendant, urged, as a ground of defence to the action, that the premises were untenable, dangerous, and unhealthy, in consequence of the damp state of the kitchens, which were frequently 3 feet in water from the overflowing of the Thames, and which, after being pumped out, left a thick coating of mud, the effluvia from which was intolerable. The learned gentleman, in support of his view of the law, cited the case of Collins v. Barrow (1 Moody and Robinson, p. 112), where the defendant had taken premises for three years, and left at the end of six months, and in which case it was held that the defendant was justified in quitting, the premises being in an untenable state of repair. The learned gentleman also referred his Honour to the cases of Edwards v. Hetherington (7 Dowl. and Ryland's Reports, 117), Sulisbury v. Marsal (4 Carrington and Payne, p. 65,) and to Woodfall's Landlord and Tenant, p. 368.

It appeared from the evidence of the defendant that she had previously occupied a house in the same street for about twelve months, the kitchens of which were continually flooded; and that while in the occupation of the premises under consideration, she had had a severe attack of rheumatic fever, which she attributed entirely to the damp state of the kitchens. The house was let out in furnished apartments, but the health of her lodgers was so seriously affected from the causes already stated, that they were obliged to quit. Witnesses were called who confirmed the defendant's statement.

The plaintiff did not deny that the house was damp, although defendant had never made any complaint while she occupied it; she was moreover aware of the state of the premises at certain seasons of the year from the fact of having lived within two doors of them for a period of twelve months. His Honour (Serjeant Manning) said the plaintiff's case had not been answered. If the premises were untenable, that would be a justification for quitting them at any period. But the defendant's case failed for two reasons.—First, the defendant occupied another house in the same street, and had a perfect knowledge of the infirmities of the house she re-



moved to, and secondly, she remained in it a whole quarter. There was no doubt very good reason for leaving in the middle of the following quarter, but she was clearly liable for the quarter she occupied. As however it was a case of hardship, he (his Honour) would make an order for payment by easy instalments, viz., 10s. a-month.

#### THE GAS QUESTION: NOTES OF PROGRESS, &c.

At Cockermouth the price has been reduced from 8s. to 6s. 8d.; and at Portsea, from 6s. 6d. to 6s.—Gas in Bradford, says a correspondent of the local *Observer*, is 5s., while in the neighbouring town of Huddersfield the company have voluntarily reduced their price to 4s.—If the Stockton Company supply their customers at 2s. 6d., says a correspondent of the *Leeds Intelligencer*, the price at which it will pay in Leeds is 1s. 9d.—“Six shillings has been proved in the City of London to be exorbitant,” say the ratepayers and parishioners of St. Leonard’s, Shoreditch, in public meeting assembled, “and this vestry pledges itself to use every exertion to secure from any source a supply of gas at a price not exceeding 4s.”—It is thus, by comparing notes, that a wholesome spirit of discontent, mingled, it may be, occasionally, with some minor errors in detail, is fast reducing the anomalous state of gas economics to something like consistency. In all such cases allowance is made, where there seems to be any reason for making such allowance, for difference of relative position with respect to coal; but, the truth is, we have clearly shown, from the companies’ own returns, that the price of coal has had comparatively little to do with the actual price of gas, or the possibility of its reduction.—The City of London Companies seem to have had some reason for the belief that the progress of the Central Gas Consumers’ Company towards a practical working state would give an additional impetus to the provincial movement; for we find that the reductions already made by the old companies themselves, in order to arrest that progress, are now being made good use of in the way of argument, in favour of further reductions, amongst the provincial gas consumers. The actual and promised reductions of the old London manufacturers are now precisely those of the new, namely, 4s., with a conditional promise of further reduction, and yet we find an “anti-humbug” in the interest of the old, advertising the new, by implication, in the *Times*, as a set of wild adventurers, backed by some tinkering pretender in the art of gas making, promising the most improbable advantages to gas consumers and shareholders! This “anti-humbug,” clearly shows the public, at least, that he, for one, is no believer in the sincerity of his old friends, who ought therefore to bridle the tongue of such a mischief-maker at this critical moment, if they think it “important to the public,” that no shadow of doubt as to their own good faith should interfere with all that now remains of their future prospects as the exclusive reapers of the city harvest. As for ourselves, we do give them much more credit for sincerity now than their own indiscreet partisan virtually advertises them to possess: our only fear is, that their repentance, as predicted, not only by us, but by their own public advocate in the late *Gas Gazette*, may have come “too late.”—The Great Central Gas Consumers’ Bill in Parliament, has been declared to have complied with the Standing Orders.—We are informed, says the *Morning Herald*, that a Mr. Wilkinson, of Grimesthorpe, near Sheffield, has invented a gas-making apparatus that will produce 9,000 cubic feet of gas from one ton of coals, and is so constructed that any steady labourer may manage it with as little trouble as trimming the oil lamps required to give the same amount of light. Mr. W. says that good gas may thus be obtained for less than 2s. per 1,000 cubic feet.—The business at the Worcester Works is said to have increased from a consumption of 16,000,000 cubic feet under the old company, to 25,000,000 under the new, and this increased consumption lately yielded the new company a dividend “at the rate of 8 per cent. per annum, besides setting aside a handsome sum for depreciation of plant.”—It is known, says a writer in the *Bradford Observer*, that the original shares in the Bradford Gas Company are paying 30 per cent. on their capital out of

the 5s. at present charged, “so that there is room for a great reduction;” but it is a mistake to suppose that the dividend would necessarily be reduced by such a reduction,—the experience of gas companies in general, as shown in their Parliamentary returns, proves the very contrary to be the probable result. With all their profit, complaints are made of the inadequate supply of gas in Bradford.—The Whitehaven Gas-work, says the *Lancaster Guardian*, pays a fair per centage for invested capital at 4s. per 1,000 feet.—The process for manufacturing the patent hydro-carbon gas is thus described in the *Mining Journal*:—“In one set of retorts is placed a quantity of charcoal and scraps of iron, which are brought to a bright red heat, and water allowed to fall upon them drop by drop, by which the water is decomposed, the carbon and iron taking up the oxygen—the hydrogen being set free. In another retort, resin, tar, or other hydro-carbon, is decomposed, by passing it through a mass of iron chains; and every 1,000 feet of gas for brilliant illumination is composed of 500 feet of pure hydrogen from the water, and 500 of carburetted hydrogen from the hydro-carbon. Mr. White has stated,” adds the writer, “that, with every expense, carefully calculated from practical experience, in the large way, (say) above 300,000 cubic feet per day, it can be made at 1s. per 1,000 feet. It is now getting into extensive operation in the large manufactories in the Midland Counties; the Broad Plain Soap Works, Bristol—the largest in the kingdom—are lighted with it; the town of Southport; Parkhouse, near Edinburgh; and the apparatus is being erected at the South Metropolitan Gas Works, Old Kent-road, Surrey.”—Madrid, it appears, is to be lighted by an English Gas Company, and several of the other chief cities in Spain are to be lighted with gas.

#### THE WESTMINSTER MEETING FOR THE '51 EXPOSITION.

On Thursday morning last a meeting was held at Willis’s Rooms, St. James’s, to promote the success of this important undertaking, when the platform was crowded with men of high station and character, and the large room filled by a most respectable audience. Many ladies were present, including the Duchess of Sutherland; and we were glad to hear Lord Carlisle announce, in the course of his most eloquent address, that a ladies’ committee had been formed, to give assistance to the project. We understand that the members of the executive committee have been re-appointed as salaried officers, with the understanding that they are to devote the whole of their time to the matter. Arrangements should be immediately come to as to the building; there is not a week to spare.

#### METROPOLITAN SEWERS COMMISSION.

A GENERAL COURT was with great difficulty got together on Friday last, after repeated half-hour postponements,—appellants, reporters, and others on business being meanwhile detained for nearly one hour in the staircase, and nearly another in the court-room, till some of the officers beat about for commissioners. Lord Ebrington, Sir J. Burgoyne, and Messrs. Hawes, Hardwick, and Lawes, were present from the outset, and ultimately Mr. Stephenson took the place of Captain Vetch, who had left, unwell. Lord Ebrington apologized for the public inconvenience, on the ground that the new commissioners were not paid functionalities, and were very limited in number, and otherwise engaged both publicly and privately, “so that the delay was unavoidable, and might be so again, so long as the law for the protection of ratepayers remained in its present defective state.” Amongst other business transacted at this meeting, the court agreed to sanction an expenditure of 400l. in the reduction of the Ordnance map of London to the scale of 1 foot per mile, a room for this purpose having already been engaged in Hatton-garden. Permission was also given to the Sewage Manure Company to lay a waste pipe into the Walham-green sewer; and some repairs and surveys were ordered.—The *Times*, while still grumbling, and on good ground, at the proceedings, or rather the non-pro-

ceedings, of a commission apparently incapable, from preoccupation, of doing the duties devolving on it, thus complains of the past, present, and prospective state of things:—“The commissioners have not only done nothing, but even their preliminary palavers have indicated no definite tendency to any general principles. It seems as yet to be totally uncertain whether there will be one comprehensive scheme of drainage for the whole metropolis, or whether different principles will be applied to different areas,—whether a good out-fall is to be sought, or whether detached reservoirs are to be employed,—whether we are to have culverts or soil-pits, ‘tunnels’ or ‘sumps.’ The engineer to the commission is no wiser than anybody else, and his scheme for a particular piece of drainage [that of Victoria-street, Westminster, into the Thames] is accordingly made ‘independent in its action,’ and so ingeniously contrived as hereafter to harmonize with either one ‘result’ or another.”

We have received great complaints from parties anxious to lay down drainage at their own cost, of being unable to obtain reply to applications after long and injurious delay.

#### Books.

*The Building Societies’ Directory and Almanac for 1850, with Digest of the Laws relating to them, &c.* Effingham Wilson, Royal Exchange.

*A Guide to Benefit Building Societies, with a Practical adaptation of Life Assurance to the requirements of their Members.* By J. H. JAMES; Consulting Actuary. Simpkin, Marshall, and Co., Stationers-court; and Wilson and Sons, Cheapside.

*A Treatise on Benefit Building Societies, containing Remarks on the Erroneous Tendency of many of the Societies at present in existence, and an Inquiry into the True Causes of their Defective Operation, with a view to their Amendment, or the formation of new Societies upon correct principles.* By ARTHUR SCRATCHLEY, M.A., Actuary to the Western Life Assurance Society. J. W. Parker, West Strand.

THOUGH last in our list, Mr. Scratchley’s treatise is not the least in our estimation. It appears to contain a thorough and uncompromising exposure of the complicated errors under which these societies labour. They are multiplying in all directions, and are calculated materially to modify the condition of the industrious classes; and as the valuable results which might be obtained through their agency are daily becoming more manifest, it is of urgent necessity, as remarked, that definite principles should be laid down to serve as a guide for their correct formation, and as the basis of some consistency in their subsequent operations. This the author has endeavoured to accomplish by the suggestion of rules, the calculation of tabular and other formulæ, and the interfusion of much miscellaneous instruction and advice. Above all, he considers that, among other defects of the various systems afloat, “one stands prominent as the fatal obstacle in the way of their success, arising from the almost universal condition by which the existence of a building society is limited to a specified number of years.” His endeavour, therefore, has been to prepare the way for the establishment of permanent associations, on more correct and practical principles than those of “the originators of the multitudinous variety of new and improved plans, promising such large benefits simultaneously to each of the two classes of members [the investors and the borrowers] who alone constitute these societies,” and who “might with as much probability of success, devise a game of cards at which all who played should rise up winners,—not reflecting, that although a fair and reasonable benefit may be secured to the investor by lending on equitable terms to the borrower, yet an extra profit beyond this, which is promised to the one, can only be obtained at the expense of the other.”

On the whole, we are disposed to regard this treatise as a very valuable one, even though it should do no more than fulfil the first of its professed objects, namely, operate as a thorough and corrective exposure of the errors and dangers of the present system; and as such



we accordingly hail its advent as the embodiment, *ad longam*, of our own reiterated warnings and exposures of a system of error but too implicitly and indiscriminately adopted and cherished, with the best of motives, by contemporary journalists.

*Counsel to Inventors of Improvements in the Useful Arts.* By THOMAS TURNER, of the Middle Temple. F. Elsworth, Chancery-lane.

The author has displayed in this, as in his former little work on "Copyright in Design," a talent for interweaving grave and weighty counsel with pleasant anecdote and reminiscence, gleaned from a varied sphere of reading, and dashed off into really a most readable little volume.

Its main aim, however, is—firstly, to offer some suggestions as to the cultivation of the fields of useful invention and the settlement of new tracts of its territory; and secondly, to exhibit the inventor's legal position in the general features of its privileges and conditions, leaving its forms and minutiae to be dealt with when the special circumstances arrive.

### Miscellaneous.

**METROPOLITAN WATER SUPPLY.**—The Board of Health, it appears, have expressed an opinion "that the works for supplying the public with water should be under the same public jurisdiction, or management, with works of drainage, paving, and surface draining, and that pending further investigations as to the practical means of applying the foregoing principle to the metropolis, it is inexpedient to sanction the investment of fresh capital in the same field of supply, as it is probable that the new works will have to be repurchased, and there can be no security that these will be applicable to the arrangements that may be hereafter recommended." Sir Geo. Grey seems to be acting on this principle from some remarks made by him on the several water-bills which were proceeding before Parliament.

Metropolitan district meetings are being held in all quarters, to agitate the supply question; and at some of these meetings Government control is being very jealously repudiated. Delegates have been sent to vote and aid in the movement with the newly-formed Metropolitan Parochial Supply Association, and numerous parishes have supported their delegates in voting sums of money to forward the objects of that association, namely, to watch the bills before Parliament, and endeavour to obtain the most continuous, cheapest, and best supply of water, encouraging all water schemes till the most perfect method be examined and adopted. A correspondent writes,—"as you have indicated in several papers in THE BUILDER that the great point to accomplish is the adequacy of the supply of good water, and that expense is comparatively unimportant (thus pointing towards the Henley-on-Thames scheme), permit me to suggest that if the waters that fall on the Cotswold Hills were judiciously collected in one or more great reservoirs, and a direct conduit made thence to Henley-on-Thames, a large body of water would be thus conveyed to that river in the way of compensation, which is now altogether diverted from it to the Gloucester side of the hills, or escapes in evaporation."—CHREMES.

**SALFORD FREE LIBRARY AND MUSEUM.**—The evening attendance is already so large, that an additional reading-room has been opened. During the past month more than 5,000 persons have frequented the reading-room, and the number of books given out averages 544 volumes every week. Not the slightest damage or loss has been sustained. A variety of gifts, including "a library" at a cost of 50*l.*, are already pouring in upon the institution.

**JOINERY.**—A patent has been granted to Mr. W. Furness, Lawton-street, Liverpool, for improvements in machinery for cutting, turning, planing, moulding, dovetailing, boring, mortising, tongueing, grooving, and sawing wood; also, for sharpening and grinding tools or surfaces; and also, in welding steel to cast-iron.

**THE LATE FIRE IN LAMBETH.**—Sir: Will you permit me to notice a remark in THE BUILDER of the 16th inst., viz.—"A statement has reached us, to the effect that, if Mr. Braidwood had listened to the urgent intreaties of Messrs. Nickells, and brought water to bear on a certain portion of their premises, property to a large amount might have been saved." Much as I regret the serious loss sustained by Messrs. Nickells, I have seen no reason to alter my opinion as to the propriety of the steps taken by me at the fire above referred to. Taking into account the limited supply of water at my command, the force and direction of the wind, if I had attempted to save any portion of Messrs. Nickells' premises, I must have allowed the fire to burn to far greater extent into the York and Westminster-bridge roads, by which a very much larger amount of property would have, I have no doubt, been lost than could by any possibility have been saved in Messrs. Nickells' premises. A very little consideration will show that my duty at a fire is not to protect any particular property, but to make the aggregate loss as small as possible. It is gratifying to me to know that the Insurance Companies who have lost large sums on Messrs. Nickells' premises, have not expressed any dissatisfaction with my mode of proceeding.—JAS. BRAIDWOOD, Superintendent of the London Fire Engine Establishment.

**THE NATIONAL MONUMENT AT WASHINGTON.**—We last week gave some account of what has been doing of late with respect to the Virginian monument to Washington. We have now to speak of the monument to the same hero, designed, ever since the year 1783, to be erected in the capitol itself at the city of Washington, and now in course of erection there. The fund for this purpose at present amounts to 87,000 dollars; but the whole cost of obelisk and pætheon will be 1,122,000 dollars,—of obelisk alone 552,000 dollars. The floor of the latter is now completed, of massive blocks of laminated granite, and at the height of 17 feet above the ground the obelisk itself has been commenced. It is 55 feet square in girth and cased with marble on walls 15 feet thick, with a cavity of 25 feet, and will be ascended interiorly by machinery and stairs. In the centre is placed the intended tomb of Washington. The entire design embraces the idea of a grand circular colonnaded building, 250 feet in diameter, and 100 feet high, from which springs the obelisk shaft, 70 feet at base and 500 feet high! The rotunda forming the grand base is surrounded by thirty columns of 12 feet diameter, and 45 feet high, elevated on a stylobate of 20 feet elevation and 300 feet square, surmounted by an entablature 20 feet high, and crowned by a balustrade 15 feet high. The terrace outside the colonnade is 25 feet wide, and the promenoirs or walk within, 25 feet. The site is near the Potomac river, south of the president's house, on the ground selected by Washington, and made public on laying out the city. The monument will be seen from all parts of the city and surrounding country.

**LECTURE ON AN EXHIBITION OF PAINTINGS.**—At an exhibition in the rooms of the Leicester Literary and Philosophical Society, Mr. J. Fowler, as reported in the local *Journal*, lately read two lectures, to crowded audiences, on modern art in general, and on the merits and demerits of the respective pictures before the lecturer and his audiences in particular. "He had not undertaken the task with hostile feelings to any person," he said, "but in all kindness and deference to the claims of others, with a desire to be useful to his younger brethren of the easel,—to point out what appeared to be the principles of truth and beauty in his profession, and to give pleasure to the members of that society." Dr. Noble, in moving a vote of thanks to Mr. Fowler, observed that where he could give unqualified approbation he had evidently done so with pleasure, while his censure had been administered gently and kindly. He congratulated the town upon having an exhibition which he looked upon as forming an epoch in its history.

**SHREWSBURY RAILWAY STATION.**—The statement that this station was destroyed by the late high winds (taken from a provincial journal) is incorrect. The damage done was to an engine shed.

**PROJECTED WORKS.**—Advertisements have been issued for tenders, by 18th March, for the erection of a parsonage house and other offices at Wheatley; by 12th March, for the maintenance and repairs of the stations and buildings between Portsmouth and Cosham, on the Brighton and South Coast Railway, and of the permanent way and works at the Portsmouth terminus of same line, both for seven years, and in one or two contracts; by 28th inst., for the erection of four cottages at Poplar; by 11th March, for the erection of new wings and additions to a lunatic asylum in Yorkshire; by 11th March, for the erection of the Victoria College, Jersey; by a date not specified, for sundry repairs to the "going gear" of a windmill, near London; by a date not specified, for the erection of public baths and washhouses at Nottingham; by 5th March for ten travelling cranes and a supply of switches and crossings for the Great Northern Railway Company; by 12th March for supplying the navy dockyards with locks and lock furniture; by 26th inst. for the construction of two reservoirs near Otley; by 1st March, for draining and sewerage at Leeds; by a date not specified, for the works to be executed in the erection of St. Matthew's Church, Leeds; by 26th inst. for enlarging a tank and constructing a gas-holder for the Stockton-on-Tees new Gas Company; and by 25th inst., for enlarging two or three tanks and erecting two or three gas-holders, with fittings, &c., for the Equitable Gas Company.

**CAST-IRON LIGHTHOUSE ON GIBB'S HILL, IN THE BERMUDAS.**—The form of this tower is that of a strong conoidal figure, 105 feet 9 inches in height, terminated at the top by an inverted conoidal figure, 4 feet high, in lieu of a capital; its extreme outside diameter 24 feet, at the narrowest part 14 feet, and at the top 20 feet. The external shell is constructed of 135 concentric cast-iron plates, having inside flanges, and varying in thickness from 1 inch at the base to about  $\frac{3}{4}$  of an inch at the top. In the centre of the tower there is a hollow cast-iron column, 18 inches in diameter in the inside, and of  $\frac{3}{4}$  inch metal, for supporting Fresnel's dioptric apparatus, and in which the revolving weight descended; it was also used, in the daytime, for the raising and lowering of stores, and likewise contained the waste-water pipe. The lower part of the tower is filled with concrete, leaving a well, faced with brickwork, about 8 feet in diameter, and 20 feet in depth, in the centre. Above this are the seven floors, the two lower ones being lined with brickwork, and used as store rooms, and the upper ones, lined with sheet iron, used in living rooms for the light-keeper. The structure occupied about one year in its erection, the different parts having been landed about the end of November, 1844, the first plate being erected on Gibb's Hill, on the 19th December, 1844, and the last plate of the tower on the 9th of October, 1845. The whole cost of the structure, including the lantern and light apparatus, is stated to have been about 7,690*l.*, and the annual expense of maintaining it about 450*l.*

**ARRANGEMENT OF GAS METERS.**—Sir: In supplying the wet meter with water, some care should be exercised. The suppliers are safer than the consumers. So soon as the water decreases in quantity, as would allow more gas to pass than would be registered, directly does a valve (until then kept open by a float), close to prevent the passage, and darkness ensues, until additional water be supplied to the meter. This is all very admirable for the security of the companies, but if there be too much water, *i. e.* more than actually required, the consumer does not then obtain the proper quantity of gas, but there is a limit to this in what is termed the dry-well, into which, if the water should be in such excess as to flow, the consumer has notice by the flickering or jumping of the several lights. Now, it is between these two extremes—the want and the excess of water—that the consumer's attention should be directed, and by the insertion of a piece of plate-glass in the front of the meter, the quantity of water may be ascertained at a glance, at any time, and be kept at a fair height (to a mark), and so a fair quantity of gas measured. Perhaps it will be as well to say that this can only be done, without leave, where the meter belongs to the consumer.

R. W.



**THE TAFF VALE VIADUCT, SOUTH WALES.**—A paper descriptive of the viaduct near Quaker's-yard, on the Taff Vale Railway, was lately read by Mr. S. Downing, C.E., at the Institution of Civil Engineers of Ireland. The viaduct was designed by Mr. Brunel, to carry the main line of the railway over the river Taff, at a point where such crossing was unavoidable. The total length was 470 feet, and greatest height 105 feet, consisting of six semi-circular arches, each 50 feet in span, resting on pillars, whose horizontal section was a regular octagon, 5 feet 9½ inches in the side, giving 14 feet as their diameter. The whole structure was upon a curve of 1,320 feet radius, and at the point where it was determined to build, the axis of the river made an angle of 45 degrees, with the direction of the tangent to the curve. One of the chief merits of the design was the avoidance of the difficulties and expense of an oblique bridge with spiral courses in addition to those of curving. The stone was of the blue Pennant grit, and obtained in the immediate vicinity of the works. The lime used was the Aberthaw hydraulic limestone. The foundations on the north side, including one of the river piers, were on rock on indurated gravel; but on the south side the abutment, one land and one river pier, had to be sunk to a far greater depth than originally designed. The real difficulty in the construction was found to be the management of the spandril walls on the concave side, so as to gain the true uniform curvature at the string course under the parapets, as on the concave side they had to gather out the courses of the spandrils about 4 inches, which, from the excellent quality of the stone, they were enabled to do.

**CORK.**—Captain Washington, R.N., held an inquisition at the Corn Exchange, on the 7th, on the subject of docks, and the result was most satisfactory to the dock promoters. At the close of the investigation, Captain Washington stated, that from the evidence adduced in favour of the project, he had no hesitation in stating it as his conviction, that the Admiralty would recommend the matter to the favourable consideration of the Government. Messrs. Paul and M'Swiny, iron-founders of this city, have contracted for erecting the passenger-shed roofs of the Cork and Passage Railway at the Cork terminus. The roofs are about 300 feet long and 57 feet span. The girders are of T iron, with tie rods and braces of 1½ inch round iron, and of very light construction.

**RAILWAY JOTTINGS.**—On Wednesday in last week the second tube of the Menai bridge was lowered to its permanent seat on the Carnarvonshire side, in the presence of Mr. Stephenson. An extension of three-sixteenths of an inch took place, denoting great rigidity. The gate of Wednesday, and again on Saturday, when the wind was at right angles with the bridge, did not affect the structure in the least, it is said, though a pressure of seventeen and a half pounds to the square foot was ascertained. The line will be in readiness for opening in about four weeks. The first, or experimental, train is to go through on 1st March.

—It is rather an odd circumstance that, already, since we noticed the very unusual fact of a locomotive boiler explosion having occurred near Newcastle, another has taken place near Darlington, in which both driver and stoker were killed. We trust this coincidence is no way indicative of the destined line of future efforts to make up the lee-way of past drawbacks in the railway world. From a return just issued, it appears that the length of new line authorized in session 1849 was 16½ miles; and length of deviations 26½ miles. Capital authorized to be raised by shares, 3,146,500l.; by loans, 764,831l. In addition to 34 Acts relative to these, there were two Acts passed incorporating companies for railways in India—Great Indian Peninsula, 500,000l. capital, and 166,666l. loan; East Indian, capital 12,000,000l. Another return gives the following comparative statement of the traffic on all the railways in the United Kingdom, for the five years ending June 30, 1849:—

Years.	Passengers.	Receipts.	Goods.
1845....	33,791,253	£3,970,341	£2,233,273
1846....	43,790,093	4,725,215	2,840,353
1847....	51,352,163	5,145,002	3,362,883
1848....	57,965,070	5,720,382	4,213,159
1849....	60,398,159	6,105,975	5,694,925

**EVELYN ON THE STATE OF LONDON.**—It may not be known to some of your readers that Evelyn wrote a pamphlet upon this subject. This was nearly 200 years ago, and it is unnecessary to say how much greater the evils which he denounces have now become. After describing the "sweet and agreeable eminency" on which London is built, he enlarges much upon the great nuisance of such dense volumes of smoke continually poured forth from the factories, so much as to poison all vegetable substances. As to Smithfield market and intramural burying,—upon the latter subject he says—"Is there under heavens such coughing and snuffing to be heard as in London churches? where the barking and spitting are incessant and most importunate; and truly am I persuaded that the frequency of churchyards and charnel-houses contaminates the air as well as the pumps and water." He quotes against the driving of cattle through the streets the *Lex Carnaria* of the Romans, who absolutely forbade them to kill, or have slaughter-houses, within the walls of the city. His remedy I will quote in full:—"I propose, therefore, that by an Act of this present Parliament this infernal nuisance be reformed, enjoining that all the works be removed five or six miles from London below the river Thames, or at least so far as to stand behind that promontory jutting out and securing Greenwich from the pestilential air of Plumstead marshes—whereas, being seated behind that mountain, which seems to have been industriously elevated, no winds, or other accident whatever, can force it through that solid obstacle."—S.

**ARCHITECTURAL ASSOCIATION.**—At the meeting held at Lyons Inn Hall, on Friday, the 15th of February, the president, Mr. C. Creeke, in the chair, a paper was read by Mr. John P. Seddon, on "Progress in Architecture," to which we shall recur hereafter. In the discussion which ensued, it was generally agreed that progress is not to be looked for in the adoption, by common consent, of any new or universal style, or in the revival of any system of past ages; but by a straightforward attention to the necessities of construction, which, if studied simply, without reference to the trammels of past associations, must lead to an architecture in character with the wants and feelings of the age, which is essentially many-sided, commercial, practical, and economical; whereas in olden days the ecclesiastical, feudal, and kingly rule were successively predominant. The necessity was urged of architects themselves taking up their profession in a higher and purer spirit, refining their taste by a careful study of the beauty of form, especially as displayed in the vegetable world, and, in the most perfect of all forms, the human figure. Reference was made to works showing progress in the present day being not copies, but adaptations and improvements of pre-existing styles. Notice was then given that the arrangements had been concluded with the New Society of Water-colour Painters for holding the annual Architectural Exhibition in their Gallery in Pall Mall during the months of August and September, and the meeting was adjourned till February 29.

**COAT OF ARMS OF CHESHIRE.**—Some time ago, Colonel the Hon. Sir Edward Cust was requested by his brother magistrates of Cheshire to determine the arms of the county, with a view of having them placed in front of the county asylum. The manner in which the worthy colonel pursued the investigation was fully explained in the statement which he presented to the Historic Society of Lancashire and Cheshire. The arms are now completed, and the pediment over which they are placed is 36 feet by 7 feet 4 inches; on this rests the sword of Hugh Lupus, which forms the basement; and this is encircled with a ribbon, and the motto, *Jure et dignitate gladii*. In the centre of the arms are three garbs of wheat-sheafs; the supporters are two wiverns of the order of dragons, grasping the feathers, allusive to the title of Chester, borne by the Princes of Wales, and showing the connection with the Tudor sovereignty and the principality. The shield is crowned with an antique coronet, and as, Sir Edward Cust says, "the earls of Chester were never earls of parliament," the coronet is "not borne with a caul or bonnet." The arms are surrounded with carved-work foliage, and were executed by Mr. George Haswell, of Chester.

**MURAL PAINTINGS IN PARIS.**—Many old paintings have lately been discovered in churches in Paris and different parts of the country, after having been buried for centuries under coats of whitewash or plaster. Only the other day, in the cathedral of Clermont Ferrand, a fine fresco (?), dating from the fourteenth century, and representing Christ crucified, with St. John and the Virgin Mary at the foot of the cross, was brought to light. The Paris correspondent of the *Literary Gazette*, says, "These discoveries have, I hear, caused the Government to take measures for having all the cathedrals and churches of France minutely examined, as it is considered probable that there are an immense number of mural paintings still in existence, though all trace is lost of them beneath the whitewash of barbarians."

**YOUNG ARTISTS.**—I have often observed in criticisms of the exhibitions of painting, that seldom, if ever, is a rising artist taken any account of, let his works be as good as they may; the critics looking merely to those who have obtained names. I think, Mr. Editor, this is a harmful mistake. The junior part of the profession ought to be spoken of (not passed over in the way they are) to encourage and spur them on to greater efforts. A young artist, sending year after year, and finding no notice taken of his work, must be discouraged. I do not of course mean to say all the works should be criticised, but those showing improvement and progress.—H.

**PUBLIC LIBRARIES.**—Mr. Ewart's motion for leave to bring in a bill to enable town-councils to establish public libraries and museums, was agreed to without a word of dissent—indeed, without observation of any kind. On the motion of Mr. Ewart also the committee on public libraries has been re-appointed.

**POLITICAL PRIVILEGES IN "MODEL HOUSES."**—That persons who enter model lodging-houses may not wholly sacrifice their right to a voice in the election of Members of Parliament, I would suggest that the parties occupying the dwellings should be furnished with a ballot-box when elections are going on, and that the majority of votes govern the proprietors in voting. E.

**LOOK ON THIS PICTURE AND ON THAT.**—It is known to all the world that immense fluctuation has taken place in the price which the share-market affixed to railway shares in 1845 compared with that which it affixes in 1850; but still it may not be a minute misapprehension to look at the following pictures for the sake of the contrast:—

Prices quoted, Aug. 20, 1845.	Prices quoted, Feb. 2, 1850.
Price.	Price.
London and North Western, 100l. paid ..... 225	London and North Western, 100l. paid ..... 116
Great Western, 80l. paid ..... 212	Great Western, 100l. paid ..... 68
York and North Midland, 50l. paid ..... 108	York and North Midland, 50l. paid ..... 181
Midland, 100l. paid ..... 172	Midland, 100l. paid ..... 44
Calcutta, 50l. paid ..... 104	Calcutta, 50l. paid ..... 12
Oxford, Worcester, and Wolverhampton, 2½l. paid ..... 74	Oxford, Worcester, and Wolverhampton, 50l. paid ..... 10
Brighton, 50l. paid ..... 70	Brighton, 100l. paid ..... 65

The causes of this grievous fluctuation are also pretty well known. The principal are—mismanagement, parliamentary oppression, shareholders' weakness and folly, and the public's want of confidence.—*Herapath's Journal*.

#### TENDERS

For the Lincolnshire Lunatic Asylum: Mr. J. K. Hamilton, architect:—

W. and T. Cooper, Derby.....	£43,000
Hutchinson and Son, Hull.....	40,900
C. Ward, Lincoln.....	40,910
C. Bennett, London-road, Lynn.....	39,700
W. Sissons, Brook-street, Hull.....	39,500
C. Lindley, Mansfield.....	38,500
Lucas and Son, Lowestoft.....	38,115
T. and W. Piper, London.....	37,550
J. W. Costar, London.....	36,452
Neale and Wilson, Grantham.....	36,000
Trego, London.....	35,978
G. Myers, London (accepted)....	32,870

#### MEETINGS OF SCIENTIFIC BODIES

To be held during the ensuing week.

**TUESDAY, 26.**—Institution of Civil Engineers, 8 p.m.  
**THURSDAY, 28.**—Royal Society, 8½ p.m.; Society of Antiquaries, 8 p.m.  
**FRIDAY, March 1.**—Archaeological Institute, 4 p.m.; Architectural Association, 8 p.m.











# The Builder.

No. CCCLXIX.

SATURDAY, MARCH 2, 1850.

**M**R. HUME'S motion in the House of Commons, on Tuesday night, "that this House, taking into consideration the condition of the cottages of the labourers of this kingdom, and the want of adequate accommodation for their families, is of opinion that a drawback should in future be allowed on the bricks and timber employed in the construction of cottages, as a means of lessening the expense of their erection," had the effect of showing that the opinion of the (few) members who were present on the occasion was in favour of the total repeal of, at all events, the unequal, unjust, and injurious duty on bricks. The motion was withdrawn, and we are glad of it, for if it had been carried it would have stood in the way of a more effectual measure. It went for too little, and originally it went for less, for, as at first worded, it stood, that a drawback be allowed on cottages the rent of which may be under four pounds per annum. The sort of dwellings to the erection of which this would have led need not be pointed out.

Mr. Hume, in the course of his speech, said, as we have often said before, with reference to the humane and wise policy which the country had lately adopted with regard to the health and comfort of the working classes, that various measures had been passed, and that Government ought to go a little further in the same direction. It appeared that, owing to the high price both of timber and bricks, the expense of building cottages was so great as to make the extent of accommodation in that respect altogether inadequate to the wants of the poorer classes. Though the duty might not be considered very great, it was impossible to estimate its indirect effect. They were all no doubt anxious to increase the comfort of those classes on whose labour and industry the welfare of the country depended. Let any one go and visit the houses in which they lived, and see these abodes of misery and wretchedness, and he would no longer wonder that the labouring classes absented themselves from home and sought the public-house and the gin-palace, where they had a comfortable room, fire, and light, to enjoy themselves. They ought to do everything in their power to make their dwellings comfortable, and Government ought to consider whether they ought not to remove those taxes which affected the improvement of the population, particularly at a time when they were expending large sums of money to promote their health and general well-being. The benefit of the repeal of the duty on bricks would not be limited to the poorer classes, but, like the repeal of the glass duty, would extend to all, and confer advantages on society year after year. While Government were forcing their sanitary measures on all the towns in the country, they were neglecting to remove the duties on bricks and windows, which public opinion pointed at as principally thwarting and stopping the progress of the people in attaining a comfortable and healthy condition. On an average of ten years the amount of the brick duty was only 481,319l. annually for England, and 13,000l. for Scotland.

Mr. Labouchere, in urging the withdrawal of the motion, said,—It was not only on the ground that the House should not entertain any proposal for the remission of any particular duty till Government had explained their views, and till the Chancellor of the Exchequer had made his financial statement, as he would do in a short interval, that he was prepared to resist the motion of his hon. friend; but even if the House were of opinion that the duty on bricks should be repealed, he would object to their expressing it in the terms of that motion. His friend gave up the 4l. test, seeing the difficulty of drawing a line of distinction; but the test remaining was not one which could be easily worked out. Who was to define what cottages were? The proposal would lead to the erection of a low class of houses, against which the House had expressed a strong feeling on a late occasion; and though he agreed with his friend that there could be no greater blessing conferred on the poor than to improve the character of their habitations, he was decidedly of opinion it was not for their interest to encourage the building of small and badly-arranged dwellings.

Mr. Henry Drummond contended that there should be an entire relief from the excise; that that relief should be practical, and not confined to certain parts of the country. No doubt where stone was plentiful the tax upon bricks could hardly be felt; but the case was wholly different in those parts of the country with which he was best acquainted. He was sure that members would readily assent to the assertion that there were many gentlemen in all parts of the country anxious to build cottages of at least three rooms, but such cottages as a gentleman would like to build rarely cost less than 100l. each, and a rent could not be obtained to remunerate the outlay without overcrowding. The duty on bricks at present enhanced the price one-fourth, or perhaps one-third [more than that]; and he really thought that something ought to be done towards relieving the public from the pressure of that injurious impost.

Mr. Peto, amongst other speakers to whom we need not refer, expressed his conviction that the lower classes of society would never be much improved by education so long as they continued to occupy their present wretched dwellings. In many places whole families occupied only one room, there being no separation of the sexes. The fact was, that half the labours which the magistrates went through were occasioned by the manner that the poor were housed; and he must insist that it was the duty of Parliament to do all that was in its power to place them upon a footing of comfort, and, if possible, of respectability.

We should like to have heard the builders' representative, too, the excellent member for Andover, give a good practical down blow on this occasion to an impost which prevents the exercise of industry and art, presses most injuriously on the poor, and withal produces to Government so little as compared with the sum it takes from the pockets of the people, and the bad effects which result from it. The inequality of its pressure is manifest when we remember what a much larger proportion the brickwork of the poor man's cottage bears to the whole outlay than it does in the rich man's mansion. It is this tax which, being levied on the bricks when in a green state, leads to the use of the abominable rubbish used under the name of bricks in and around the metropolis, to the peril of her Majesty's subjects, and, by confining the manufacture in few hands, and other

modes of operation, makes the price of this rubbish nearly double what need be paid for good bricks.\* So far as safety and stability are concerned, to many a brick is a brick, and it is put into its position without thought of the difference which exists between bricks of different qualities,—a difference which amounts to this—as we proved by experiment some time ago—that while a well-made properly burnt brick stood unharmed beneath the pressure of 60 tons, others of different make were crushed by 3 tons.

There appears to be considerable anxiety throughout the country to effect improvements in the manufacture of brick, and treat it artistically, but nothing will be done till the duty is taken off. The communications to us on the subject are numerous, and suggestions of all kinds are thrown out. Thus, one correspondent says, with reference to vitrified brickwork:—

"Some years ago it struck me that it would task our invention but little to contrive a weather-proof surface to our dwellings, which would render them more sightly and more durable. I would suggest to a brickmaker the moulding of a clay block, of 1 foot or 18 inches square, by 6 or more inches thick; the face glazed as pottery,—the back raw, and likewise the edges, with a groove on the lower, and a slider ridge on the upper,—something like the fittings of a dovetail; the girders and binders might be case-hardened, and polished at the ends to build in,—the joints to fit so close as to admit only a smearing of fine mortar; thus laid in the structure, with a neat pointing if necessary, we might have an impervious crystal cover, without living in glass houses. There could be no artistic difficulty in the superficial imitation of a sober granite, rich porphyry, or other choice quarry; while the appearance would be unique,—wet or dry of the same cast and colour, and lasting for an age.

"Again, we might cherish the thought of bringing such polished material to the inside of our apartments,—to our hearths and "penates;" with the sides so enamelled, dust could scarcely lodge, or damp strike through, excluded by an incombustible superfiice. We have seen tessellated pavements and painted tile floors: why not make the glazed sides of rooms? and they might thus be as splendidly ornamented as if with decorative papers. The gloss might illumine the cornice, the ceiling, the column, the pilaster. To me it seems not unlikely that we might fuse a glassy coating over a roof, so as to form a sheet of entire casing, or to rough glaze the walls, whether of brick, stone, or plaster."

In reply to the question in our last, as to the present manufacture of ornamental brick chimney-tops, the architect of the Earl of Leicester informs us, that the manufacture of ornamental brick chimneys is continued at Olkham, and that the examples of

\* The *Daily News*, in a recent article on the importance of getting rid of this duty, says:—"It was originally a war tax, imposed by Mr. Pitt in 1784, in order to provide for the payment of the debt incurred by the American war. No tax that ever was imposed by Pitt was more vehemently objected to in Parliament. It met with the most decided opposition, and was only adopted after great difficulty, and upon the distinct understanding that a custom duty upon seaborne stone and slate should also be imposed. Such duties were levied for many years, but they were found so objectionable that ultimately they were repealed, though the tax on bricks had meanwhile been doubled. So much for the good faith of Government to the brickmakers. The tax on bricks, as at present levied, is most onerous upon the manufacturer. All bricks must be of certain dimensions. They must be made in sheds duty entered and regularly marked, and numbered by the Excise. The duty is charged whilst the bricks are in a raw, or green state; and no matter what damage they may subsequently suffer, the excise will allow the manufacturer no compensation beyond one-tenth for injury. This allowance operates most unequally according to the different situations of the brick-fields, and there have been cases where thousands of pounds' worth of imperfect bricks have been ruined either by frost or flood, or hot weather or wet weather, without the slightest compensation being afforded by the excise to the unhappy sufferers."



Hampton-court, Barsham, &c., are strictly adhered to. Other brick-ware of an ornamental character, such as quatrefoil panels, finials, corbels, &c., is also there manufactured, of a pure Bath-stone colour and of bright red. His lordship has recently erected a parsonage at Holkham, in the Tudor style, in which all the dressings usually executed in stone have been executed in brick-ware.

The various papers which have appeared in our journal on the manufacture and use of hollow bricks have excited much interest, and have led to many inquiries for farther information, particularly as to where machines may be seen. We will take this opportunity to supply it.

Hollow bricks may be made by any ordinary field tile machine, and there are several manufacturers of these. The Ainsley Company have a patent for a machine, as also for economic kilns. Mr. Clayton has also a patent for a tile machine, and Mr. Burton has recently taken out a patent for compressing any form of pipe, hollow brick, or tile, either plain, moulded, or enriched.\* Mr. T. Scragg, of Tarporley, Cheshire, also makes tile machines; he made the hollow bricks used in the great arch ceiling over St. George's Hall, Liverpool, described and illustrated by Mr. Robert Rawlinson in our last volume. But, as previously stated, any tile machine will make hollow bricks of any sectional form. Care ought to be taken in making the die so as to arrange the inner side of the plate, that there shall not be any flat face for the clay to impinge against; but the whole surface should slope evenly down to the opening forming the section of the brick: by this means the clay will be gradually compressed into the form the brick must take, and the surfaces and angles will be preserved smooth and sharp. If the inner portion of the die-plate is flat, as many now are, or has any portion of its surface at right angles with the outward pressure on the clay, a curling motion is given to it, which produces a rugged surface and serrated angles to either bricks or tiles.

In using hollow bricks with dowels, the bricks may be made of any form of section, but having the internal ribs to receive the dowels, as shown in a previous number of our journal.† The bricks will be best made plain, that is, square at each end; the dowels may either be of plain tile or of slate, and they should be fitted and cemented into one end of each brick at the place where they are to be used.‡

One end of each hollow brick will have the requisite dowel inserted, and projecting one-half its depth (or from one inch to one and a half inch) beyond the end of the brick, and this end the bricklayer will set outwards; he will then mortar the bed and joint as for ordinary work, and set the open end of the next brick against the projecting dowel, pressing the joint flush up and cutting off the spare mortar as in ordinary brickwork. The dowels, we should mention, will be indispensable in floors, or in any work where one face or more of the hollow-brick is to be exposed.

We sincerely hope that the Chancellor of the Exchequer, in his forthcoming financial statement, will show that he has not overlooked the advantages that would result to the industry of the country by the removal of the brick duty.

\* These parties have establishments in London.

† See page 53, ante.

‡ This work may be done most cheaply by a boy or labourer, either by contract, at so much per hundred or thousand, or by day work; the bricks so prepared may be stacked ready for use, and the bricklayer will have nothing to do but to set them as he would ordinary bricks.

#### DOMESTIC ARCHITECTURE AMONG BARBAROUS RACES.

THE INDIAN ARCHIPELAGO.

THE approaching exposition of the industry of all nations has awakened in the public mind a desire to know the progress which has been made by the various races of the world in the useful arts, and thus, in some measure, to forestall the decision made after that exhibition. Among the most curious as well as important branches of the subject is the domestic architecture of barbarous races,—and to this we propose devoting a short descriptive series. We may almost judge of a nation's character, and certainly of its progress in civilization, by an examination of the dwelling house. Enter an English home, and all the parts and arrangements of it indicate the national taste, and the national advancement in domestic art: pass from this to one in Paris, and the change is great transport yourself to Cairo, and the other capitals of the east; to Florence, and the other cities of the south; to Peking, and the great barbarian towns of Russia, and thence through all the divisions of the globe, and a tour through the dwelling houses of the race will expose to view its customs, tastes, and characteristics. Besides this, it is interesting as well as useful to compare the progress of other nations with our own. The practical builder, as well as the general reader, may derive instruction as well as entertainment from such an examination, which will enable him to compare the dwellings of the Siberian savage, the Celestial barbarian, the Indian islander, the wild man of Australia, and the African doko, with the miniature palaces which form an Englishman's delight.

Recent events have attracted to Borneo and the rest of the Indian isles an interest at once general and great. For this reason we have selected the Indian Archipelago as the starting point for our tour of observation through the dwelling houses of barbarous races. Commencing with the great island that has formed the theatre of Sir James Brooke's principal exertions in the cause of humanity, we find in it many distinct styles of domestic architecture in different provinces. In the piratical district of the Rejang, and that part inhabited by the Sarebas, Sakarran, and Kanowit pirates, we find villages of singular construction. The houses are erected on piles 40 feet in height: they are framed with strong timbers, flanked at the sides with bamboo, and thatched with atap, or the leaves of a certain tree. A broad balcony runs round each dwelling, and in this the inmates sit in the cool of evening to enjoy the soft air. The supporting piles are strong and thick, so that when one of these villages was attacked by the pirates, it took them several hours to hack through them, until at length the weight of the superincumbent mass of building brought the whole down with a tremendous crash. But this class of dwellings is not common. In other districts a village consists of one huge house, with many entrances, erected on short piles, with a platform running along the whole front. To this the means of ascent is by notched poles, passing up through openings in the elevated stage, and drawn up at night. The great house is low, with a heavy slanting thatched roof. Here and there a projecting portion, like a large attic window, allows room for ingress. The whole is roughly built of branches of trees and bamboos, coarsely wrought, but firmly jointed together. The exterior has the appearance of a street of old English farm-sheds, half ruined; but in the interior we find much neatness and comfort, the apartments being divided one from another by woven screens of rattans, while along the walls are fixed hollow trunks of trees, to serve as couches. These rather resemble short mangers for cattle than places of repose; but when darkness fills the building, and only a red glare is emitted by the smouldering heap of fire in the midst, these wooden couches, with their dark occupants buried in sleep, present a singularly snug appearance, especially as fine mats are employed for warmth, to cover the slumberers, carpet the floor, tapestry the walls, and line the roof. At the end of each village of this kind is an octagonal building, called the head house, where the trophies of war are kept, and festive meetings celebrated,

In other parts of Borneo we find the savages dwelling in small circular edifices, built among the branches of trees; in others, inhabiting little low huts, forming a cluster, buried in some deep woody hollow; in others, swarming in vast buildings lying along the banks of rivers and consisting of piles of connected timbers without plan or regularity, erected one against the other as the tribe swells its numbers; but notwithstanding its outward rude aspect, evincing that taste for animal comfort for which most savages are remarkable. Some of the Sarawak chiefs possess dwellings of extreme neatness and beauty, erected with no little skill, on low piles, ascended to by ladders, well thatched, and surrounded by palisades. In a few of them may be traced a resemblance to the primitive Swiss cottage, with its broad eaves overhanging the verandah. The Lundi Dyaks dwell in houses which the English cottager would admire, and, indeed, closely resembling, in everything but their elevation from the ground, the habitations of our peasantry. The houses possessed by the fierce and formidable pirate tribes of Borneo present every appearance of comfort, and many of them are remarkable for the skilful joining of the timbers and planks, considering that few nails are used, and very rude tools employed.

The general materials used in the construction of the houses of the Indian islanders are bamboos, rattans, the palmetto leaf, atap, and wild grass. The supporting posts are of timber or bamboo, the walls of plaited bamboo flattened, the roofs of grass or palmetto leaves, the first most commonly used among the rural tribes, the second among the coast dwellers. In a brief sketch like the present we must not pause to enter into too minute details, but leaving Borneo with this desultory glance, turn to the other islands of the Archipelago.

These afford the spectacle of many species of human dwelling, from the rude hollow tree of the Papuan or Peninsula savage to the comfortable house of the Javan labourer, or the still more commodious residence of his prince or chief. Mr. Crawford, whose book is remarkable for being ill-arranged and incomplete; still affords some interesting information on this point; but Forrest, the enterprising voyager, has given us a far better account. He visited one of the largest class of structures inhabited by the New Guinea negroes. It was built on posts, fixed many yards below low water mark, so that the tenement perpetually hung over the waves. The house consisted of one vast hall, common to a whole tribe, and numerous apartments opening into it on either side. At either end was an elevated stage, with a door at the outer extremity opening on the sea, at the inner looking on the jungle, and on the platform were many canoes, of various sizes, drawn up, but ready to launch at a moment's warning. The double entrance was designed for safety. In case of an attack on the land side, the inmates of this extraordinary dwelling took to their boats, and escaped by sea; if threatened by water they fled into the Indian jungle. Only the married people, unmarried women, and children dwelt in this house. The bachelors occupied small separate buildings, erected on more substantial posts, further out at sea.

All the native dwellings in the Archipelago are constructed of perishable materials; but the islanders have dedicated to their gods temples of more substantial structure than those consecrated to their own comforts. Great edifices have been reared in Java for the worship of deities, whose very appellations have been forgotten; but the temples remain—records of skill, industry, and wealth, while the dwellings of the people appear to perish with every generation: even king's palaces are composed of materials that decay within a few years of their erection.

As we have said, the habitations of the tribes of the Indian islands divide themselves into two classes—those inhabited by the maritime, and those of the agricultural tribes. Of the first are those of the Malays, of most of the inhabitants of Sumatra, Borneo, and Celebes; of the second, those of the Javans, the Balivese, and others. The first are erected on posts, and the access to them is by a rude ladder, or the still more primitive means of a notched tree-trunk. The piles vary in height, from six to forty feet, and are large or small, according to the weight of the superstructure. Underneath is a sort of piazza, generally very



fithy, where ducks or hens are kept, and secured by a low palisade. The house of a peasant, in the most populous part of Java, where materials are somewhat scarce, is worth about sixty days' labour.

Next to the house of the peasant, the commonest description of dwellings among the Javanese is what is called the *bandapa*. It has a thatched roof, occasionally covered with shingles, four sided, and supported by four wooden pillars. Around this, the principal part of the structure, is a roof, a few feet in breadth, composed of light materials, and erected on moveable props. Where privacy is necessary the whole is surrounded by a close palisade, and divided into apartments, and in this airy, unsubstantial habitation, the owner resides, until it literally falls to pieces about his ears.

The house is always erected on a raised terrace, sometimes of common earth, sometimes, as a foundation, paved with rough flagstones, or cased with indurated mortar.

In Sumatra a village is generally composed of rows of houses, disposed in the form of a quadrangle, with lanes or streets between. In the centre is a square, and in the middle of this stands the *balis*, or town hall, a room of from 50 to 100 feet long, by 30 wide; open at the sides, but sheltered by the low, overhanging roof, and a few curtains of mats or chintz. Neither stone, brick, nor clay are ever made use of, and the principal reason for this fragile species of domestic architecture on this island may be found in those frequent earthquakes which, from a period immemorial, have ravaged the island from time to time. The frames of the houses are of timber, with the floor resting on plain or carved pillars, from 6 to 8 feet in height, which have a sort of capital, but no base, and are larger at the upper than at the lower end. According to Marsden, the people have no idea of architecture; lavishing strength on parts which do not require it, and neglecting those whose solidity is indispensable. To make the flooring they arrange whole bamboos, close to each other, and fasten them at the ends to the timber. Across these are laid laths of split bamboo, about an inch wide, and of the length of the room, which are fastened down with a species of cord made from the fibres of the ratan, and the whole is spread over with mats. This kind of flooring is so elastic that strangers are alarmed when treading on it for the first time, but is, nevertheless, sufficiently strong for a family that does not indulge in the civilized luxuries of Sir Roger de Coverley or the Polka.

The sides of the house are usually constructed of bamboo split, and flattened by pressure. This is either nailed to the wood or woven in convenient breadths, which are worked round the upright posts, by ropes of the inner bark of the tree *coolioy*. For the roof, the atap, or leaf of the *nitrah* palm, is employed. These, previous to use, are formed into sheets about five feet in length, which are doubled over a lath, then so disposed that one flap over the other to carry off rain, and all are fastened to the bamboos that serve as rafters. Elevated sites are usually chosen for the village, the slopes of hills or the summits of rocks, the neighbourhood of a river, stream, or fountain being indispensable to the existence of the community. Small fixed frames of woven bamboo are used as bedsteads, and are fixed along the walls.

The communities inhabited by mountain tribes, when located on great rivers, or in swampy districts, present a singular appearance: Palembang in Sumatra, and Bruné in Borneo, are remarkable instances. Some of the houses are erected on lofty piles within high water mark, and others are built as moveable rafts, moored in the water, and moved to and fro at pleasure. In such places the means of communication between house and house, street and street, are of course in canoes. Many other different fashions of domestic architecture prevail in the Indian Archipelago; but we must content ourselves with this rapid glance, as space will not permit a more detailed description. From what we have said, however, a contrast will be at once suggested between the substantial edifices of our cities and the snug cottages of our rural districts, and the cumbrous and rude or frail and flimsy structures of Borneo and its companion isles.

The furniture of these dwellings is equally simple and incomplete. In Crawford's ponderous history we find an entertaining contrast between the contents of an English and those of an Indian home. The necessary furniture of a European dwelling, he says, has its origin in customs totally different from those of the Indian islanders, and in the necessities created by a climate the very reverse of that in which they live. We sit on elevated seats, and, when we eat, must be served on tables of corresponding elevation. They sit and eat on the ground, and require neither chairs nor tables. To protect us from the cold, we require soft and warm beds, and thick coverings. All these would be unsupportable nuisances in the climate of the Indian islanders. Their food is served up on salvers, or trays of wood or brass. Their beds are no more than the slight bamboo floor of the cottage, or at best, benches of the same flimsy material, on which a mat is laid, with a single small pillow. The peasant retires to rest without undressing (when he wears any clothes at all), and with the sarong or principal garment, wraps himself up, and thus receives some protection from the bites of venomous insects.

In the dwellings of the chiefs, however, we generally find a kind of state bed, a couch of honour, which is more an object of display than an article of use, as it is employed only on solemn occasions. Of other furniture we find little. Spoons, knives, and forks are unknown among all the native tribes, except a few of those to whom contact with Europeans has taught some innovations on their ancient customs. A few dishes of porcelain ware, imported from China, are occasionally used as luxuries; but the more common table utensils are manufactured of brass. In cooking, shallow iron pans, imported from China, or coarse earthen pots, are used. Among the more barbarous tribes, the green cane hollowed is used, even in boiling rice.

The manufacture of the artisan's tools is still in its rudest state. Iron is scarce, and its employment in the industrial arts is little known. All nations seem to have learned its use in war, by a kind of intuitive tendency, but in the making of files, nails, chisels, saws, hammers, and axes, its employment is very limited. Still, with all these disadvantages, the houses of many of the Indian tribes are neat, comfortable, and compact.

#### THE INSTITUTE MEDALS AND THE DISQUALIFICATION CLAUSE.

At a special general meeting of the members on the 25th ultimo, which was very numerously attended, the report of the council declining to award the Soane medallion to any of the designs submitted was confirmed, after a long discussion. The rigour of the report was generally lamented, and a motion was made to return the report to the council, with a recommendation that they should award the medal to the competitors best entitled to it who had complied with the instructions, but this was lost.

The council brought up a second report on the subject of the unwise, illiberal, and injurious clause which, on the part of members, makes having engaged in the measurement, valuation, or estimation of any works undertaken or proposed to be undertaken by a building artificer, except works under their own direction, a ground of expulsion from the Institute.

In the first instance, the council had declined to recommend any alteration, and the general meeting returned their report for reconsideration. The council, on the present occasion, recommended its repeal so far as it extended to *associates*,—and this, after some discussion, was carried by a large majority. Some rare stuff was talked by one or two opponents of the change, who must surely know better.

We congratulate the Institute sincerely on this step in the right direction. It should be unnecessary to remark that the object of the change is, not that all who measure for artificers should be brought into the Institute, but that an *architect* should not be prevented from acting for builders if requested to do so.

At the same meeting, the sum of 50*l.* was voted from the general funds in support of

the 1851 Exposition, contingent on the opinion of the honorary solicitor as to the legality of so appropriating the funds of the Institute. Even if found *legal*, and anxious as we are to aid this important undertaking, we must question the propriety of the vote, knowing as we do the claims there are on the comparatively limited funds of the Institute.

#### THE EXPENDITURE OF THE NEW SEWERS COMMISSION.

A FEW days ago we took the opportunity afforded to all ratepayers, by a clause in the Sewers Act, to look over the statement of receipts and disbursements by the commission, impelled thereto as much by a call from the collector on the preceding day, for the amount of a 6*d.* rate, as by our duty to the public, and received courteous attention from Mr. Hatton, the chief in the Accounts' Office. We must confess we were somewhat startled by what we saw, and we think our readers will be so too.

The general statement of accounts from the 5th January, 1849, to 31st December, 1849, showed that—

The outstanding assets, January 5th, were.....	£40,097
The liabilities.....	95,201
The cash balance in hand.....	22,956
The receipts during the year.....	71,623
The payments.....	85,345
The outstanding assets December.....	64,489
And the liabilities, which include a charge by Ordinance Office, of 11,700 <i>l.</i> ....	100,738
The amount of payments, 85,345 <i>l.</i> was made up as follows, omitting the shillings:—	
Works.....	£50,309
Surveys.....	8,339
Loans.....	4,014
Management.....	22,400
And contingencies.....	280

Twenty-two thousand pounds for management, exclusive of surveys! One would think there must be some error here.

It appeared that these payments included debts incurred previously, namely, from the expiry of the old commissions, and we, therefore, looked a little further, and gathered as the actual expenditure of the year, from January to December, as follows:—

Expense of works.....	£42,839
Surveys.....	( <i>qu.</i> ) 9,060
Management.....	20,004

The proportion per cent. which the charge for management bears to the whole charge, taken on the first nine months of the year, is stated at 25*·*68.

If little has been done, at all events, much seems to have been paid for.

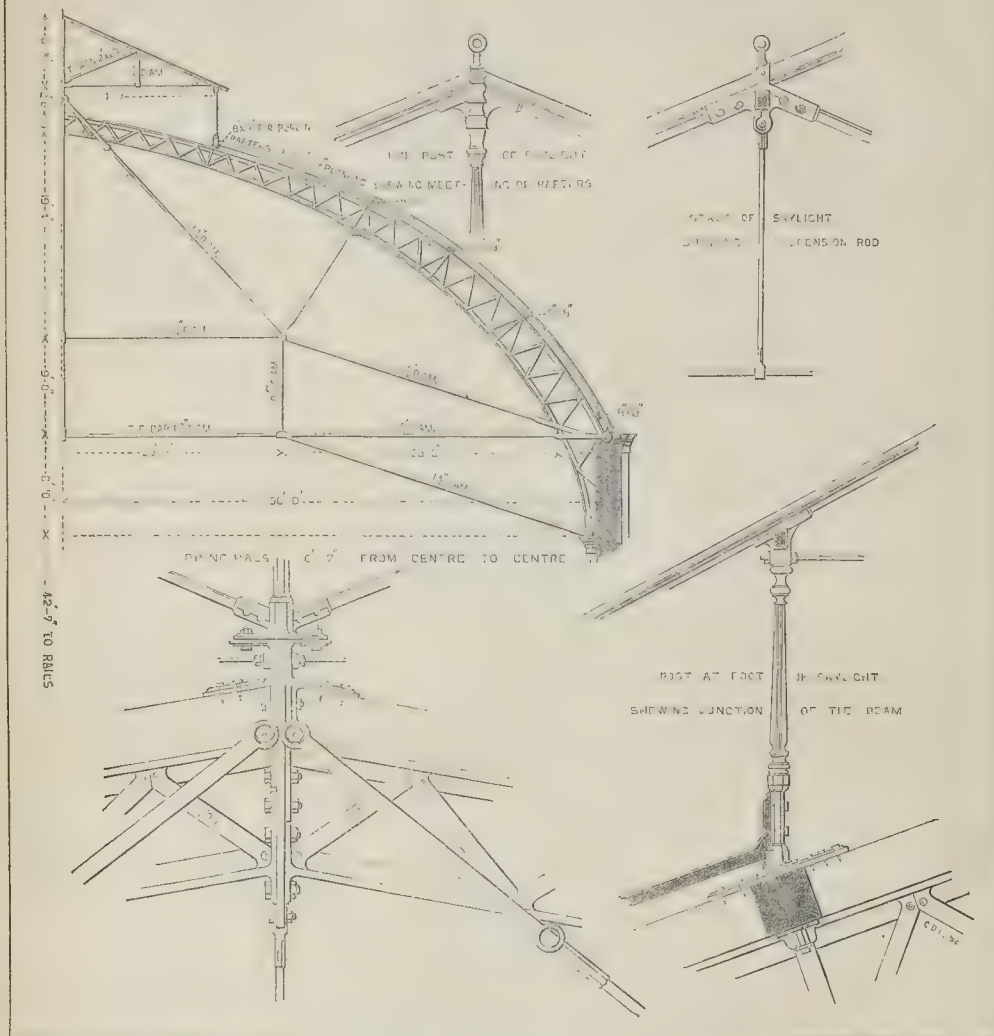
#### THE SECOND BASSO-RELIEVO FOR THE NELSON TESTIMONIAL.

THE second *basso-relievo* (if so it can be called, seeing that some of the parts project at least 15 inches from the face of the work), executed by Mr. W. F. Woodington, is completed in bronze ready for fixing, and promises to be very effective in its position. The battle illustrated is that of the Nile, and the artist has been fortunate in the selection of an incident. Nelson has been struck, and the surgeon is leaving a sailor to whom he had been attending, to go to the commander; but Nelson waves him off with the intimation that he shall "wait his turn." The figures are 8 feet high, much larger, it would seem, than those in Mr. Carew's panel. The other two works, the St. Vincent and Copenhagen, have likewise these larger proportions. This want of coincidence, when all the panels are up, will, we fear, prove hurtful to the general effect, and is much to be regretted. The *relievo* was cast (in five pieces) by Messrs. Moore and Fressange, who have also the two others in hand. The thickness of the metal is about three-eighths of an inch. Mr. Woodington executed one of the earliest bronzes issued by the Art-Union of London.

"MARYLEBONE LITERARY INSTITUTION GAZETTE."—The Marylebone Literary Institution has published, under the above title, two parts of a periodical which, besides giving the members information of what is going on within the walls, contains some pleasant reading.



## ROOF OVER GREAT SHED, STRASBOURG RAILWAY STATION, PARIS.



## ROOF OVER GREAT SHED, STRASBOURG RAILWAY STATION, PARIS.

We are enabled by Mr. Burnell to comply with the request of several of our readers, and give the details of the wrought-iron roof over the Strasbourg Railway Station, in the Rue Neuve Chabrol, Paris. The span is 100 feet; the rise of the roof, 30 feet; the principals, 6 feet 7 inches apart from centre to centre. The scale of the enlarged details is 1 to 20.

In vol. vii. of our journal, p. 523, will be found illustrations and a description of this station. The roof is covered with zinc.

**A NEW HEARSE.**—Mr. Shillibeer has launched a new hearse, with the novelty of a decoration upon it, and an ingenious arrangement of the upper part, by means of which a ledge for the feet of attendants sitting upon it when returning is provided. It is to be wished that men of spirit and enterprise, when contemplating improvements, would take artistic advice. If Mr. Shillibeer, who is certainly of that class, and to whom the public are already indebted, had done so he would have avoided the mixture of styles apparent in his ornamentation.

## PROFESSOR COCKERELL'S CLOSING LECTURE ON ARCHITECTURE, AT THE ROYAL ACADEMY.

At the sixth lecture, on February 7th, the professor lamented (warned by the multifarious interests which this venerable and magnificent art presented to the imagination) that the demise of this course had arrived. A didactic course on the beautiful of the art alone would require at least three times the number of lectures, if the means of the Royal Academy permitted. Under these obstructions, all we could do was to uphold and illustrate the great principles and chief authorities, against the caprices of ever fluctuating fashion, through good and evil report. Thus, such lectures are rather the keys to knowledge than its possession and development. He considered the pupil should be familiar with the diagrams he had offered to them, and should be perfectly conversant with the great authors on our art,—our patriarch Vitruvius, the splendid and accomplished Alberti, the elegant Palladio, Vignola, Serlio, and the masters of the revival; Philibert de l'Orme and the elaborate Blondel, of the French; and Aldrich, Chambers, and others, amongst ourselves. Translations were easily obtained where the originals could not be read.

The mind of the student, furnished and established in these, might proceed to exercise his æsthetic and critical faculties; he might fill the large lacunæ which such lectures as these might leave. His travels in this great metropolis and in England would improve him, before he indulged the flattering prospects of foreign travel.

Having traced the elements of orthographical beauty, proportion, and composition, aided by nature's examples, we now arrived at proportions of areas, of which she had given us no prototype. This was left to man's invention and sense of perspective.

Vitruvius thus treated this subject in his fifth book: it was remarkable, that much as he had descanted upon the exterior of the temple, not a word was said of the interior; showing, that regarded as the *adnicula*, the cella, the house of God, or rather of his colossal idol, and visited only under religious and oracular impressions, and viewed perhaps chiefly from the doors, it was not a subject of popular study and rule. Not so with the basilica, the curia, forum, and gymnasium, the house and its apartments, which he treated largely. In this very interesting matter, we should refer to Alberti, b. 9, c. vi.; Palladio, b. 1, c. xxi. and b. 3, c. xvii.; Blondel, b. 3, c. xiv., for the



classical; and Cæsarianus had preserved the rules of the mediævals in his curious commentary on Vitruvius, fol. 97, b. vi., to which he referred the students.

In England we had some fine examples of areas and squares, which were capable of improvement; their scenery might be carried into the adjoining openings of streets, assisting the square and beautifying the approaches or foregrounds to it. Wood's Circus and Amphitheatre at Bath had not been surpassed; the disposition of the three streets piercing the latter, were admirably calculated for effect.

The collection of proportions of halls of Europe and of our own country was a desideratum; the halls of London and the two universities, our own Whitehall, Inigo Jones's room at Wilton, Hatfield, the Bank parlour, so remarkable in its two corridors, were fine examples. Palladio differed from others, in making his rooms 5 by 3 instead of 3 by 2; his proportions were more elegant; of course there was a proportion of length for each kind of apartment, from  $1\frac{1}{2}$  diameter to 5 or 6, varying from a room to a double cube—the hall, the church, the gallery, or corridor. Perspective elongation was the natural thirst of the eye; if in a parallelogram, horizontally; if in a cube, vertically. This was illustrated by the poet of nature, who makes the melancholy Hamlet to point at length; "this goodly frame, the earth," says he, "seems to me but a barren promontory;" space is again his desideratum upwards, and a kind of indefinite surface which the eye may pierce, through different magnitudes, as of pendants, *culs de lampes*, &c., in various dimensions; "this most excellent canopy, the air, look you, this brave overhanging firmament, this majestic roof fretted with golden fires! why, it appears no other thing to me but a foul and pestilent congregation of vapours;" and there can be no doubt that this elongation, by indefinite surface, and the artificial magnitude given by objects or ornaments small and of different sizes, was the true principle of ceilings; it was, therefore, that the mediævals, from plain cross vaulting, proceeded to multiply the ribs and *nervures*, until at length the whole surface was broken up into minute parts, and a web-like tissue, as we see in the vaulting of Henry VI. and VII.; again, in Pompeian and revival ceilings, the same principle was at work, in the minute subdivision and elaboration of parts.

It was Michelangelo, Correggio, and his school, the Caracci, who first departed from that important principle, by greatly enlarging the figures or masses upon ceilings, and so lessening their distance and also the rooms they were in: the painters in the upper portion of the House of Lords had admirably adjusted their scale to the locality and the architectural proportions; but even in small dimensions and unhappy proportion of rooms much was to be done by intelligent compartition and panelling, as we see in perfection in the mural decorations of Pompeii, in which smiling vistas afford escape for the eye, and the bald surface is elegantly varied and taught to recede perspective. This is an art which must be left to the genius of the artist; one will be arrested by a wall, and see naught beyond it; another will pierce that wall by art with unimaginable distances, proportions, and objects, like Sir W. Scott's description of Queen Elizabeth's ante-room, in which Blunt and Sir W. Raleigh are left to their own meditations between bare walls. The first (in perfect correspondence with his name) sees nothing but the bare plaster; the other, by degrees, pierces it with landscape, hall, and battle field, animated by the hunt, the court, or the chivalrous combat, and a multitude of images which crowded upon its surface, and gave it life, and breath, and air. It is to be lamented, that having such able masters now in this art amongst us, so little has yet been done in this way, and that the *neutral tint*, the grays, the *indicated fog*, and the speechless gold moulding, are still the chief resources of our decorators.

The use of glass (now so cheap) will aid our perspective; we may pierce over doors, and even windows in our apartments, giving enjoyment of the vista; the ceiling, and even the society of adjoining rooms, without the inconvenience of noise or overlooking: like the philosopher, we shall soon live in glass houses.

The most afflicting departure from all good precedent had been exhibited of late years in the so-called Grecian ceiling, in which unmeasured trabeation, sometimes in a single unbroken sheet of most alarming extent, threatens to crack over us; or a panelled surface, impossible and irrational if in the wooden structure it affected;—a church 80 feet by 60 feet, so covered, was a distress and a solecism. How superior the method of the sixteenth and seventeenth centuries, in which a large cove reduced the ceiling, or flat surface, to an agreeable parallelogram. The ceilings of Louis XV., and even of our Adams, were not to be despised, and he hoped yet to see revived the stucco hand-work which we saw with so much pleasure in those from the beginning to the middle of the last century.

The professor exhibited some splendid interiors, especially one of the Pope's chapel, favoured by Mr. Angell. From interiors he proceeded to that subject so dear to an Englishman, his house and castle, quoting that passage from Sir Henry Wootton which forms the motto on our title page. He shortly gave the history of English villas, from Henry VIII. to our day, indicating various examples, according to the changes and habits of the times. He thought himself highly favoured by the communication of the plans of Drayton Manor House (by his patron and master, Sir Robert Smirke, and through his brother pupil, Mr. Sydney Smirke), which he exhibited and described. He considered it as of the highest interest, as displaying the best example of modern refinement and domestic arrangement in this department of our art. Having had the honour to visit that mansion recently, he could not refrain from expatiating on the felicities and the graces with which that house was adorned, and which we so heartily desire for its illustrious occupants. Especially it was gratifying to see in that house none but modern works of art, and those abundant, and all relating to the noblest intellects and progress of their own day. It spoke for his real liberality that, side by side with the great living actors in the politics and destinies of this and other European countries, the poet, the philosopher, the painter, and the architect, were placed in equal honour,—none before or after the other,—ranked only by their real worth, and the extent of labour with which each had elaborated his natural vein, and the talent which had been confided to him.

He cited Stratton Park as a charming example, and the seat of the King of Wirtemberg, close to the capital.

Mr. Cockerell concluded his very interesting and valuable course of lectures by assuring them that in labour would be found the philosopher's stone; that for the happiness of a noble, and capacious, and delightful pursuit, they must be content to pay the price, which was a privation of many vulgar pleasures, and wealth especially amongst them; the student must be animated with the sanctity of his cause—the cause of the arts—for that was the cause of every imaginative and learned science and pursuit: it was through imagination, chiefly, that the loftiest aspirations, those of religion, could be cultivated; faith was a righteous exercise of the imaginative faculty; and it was through the study of the beautiful and the good in nature, in science, and in morals, only, that imagination might picture that country the delights of which "eye hath not seen, nor ear heard, nor hath it entered into the heart of man to conceive." This apology for the arts would be found as just as it was noble, and was the truest groundwork of the artist's calling, since it was his part to cultivate this faculty of imagination. With all their architecture, therefore, he recommended to the students well to consider the architecture of their *lives*; and he hoped another year to see them improved and fortified in their pursuits.

ARCHITECTURAL INSTITUTE OF SCOTLAND.—Steps are being taken to establish an Architectural Institute in Edinburgh, and a number of influential persons have given their adhesion to the scheme. We would suggest to the leading Scotch architects that they should at once come forward and aid the project, and not wait until the work has been done by the younger men.

#### BRITISH ARCHÆOLOGICAL ASSOCIATION.

At the public meeting on Feb. 22nd, the new president, Mr. James Heywood, M.P., took the chair, and gave a very interesting address, showing his heartiness in the cause of archæology, and his desire to assist the efforts of this association.

Mr. Lynch exhibited two ivory carvings, the subjects being the crucifixion, date fourteenth century, and the story of David and Bathsheba, date early seventeenth century. Mr. C. R. Smith exhibited a copy of a seal in brass, found in the New River, near Islington, which appears to have belonged to an ancient society of notaries; and Mr. E. Keet exhibited a stone celt of large size, found at Lambeth.

Mr. Charles Baily reported that he had seen the building in the rear of Mr. Griffith's house, No. 322, High Holborn, mentioned by Mr. Lynch at the last meeting. It consists of a room or hall, measuring now 40 feet by 21 feet, but has been formerly somewhat longer. Mr. Griffiths pointed out to Mr. Baily, at a few yards westward of this building, the position of the circular church of the Knight Templars, which they occupied previous to the erection of the present Temple Church in Fleet-street. Stowe relates that the old Temple Church was occupied by the inn of the Bishop of Lincoln, and afterwards by a house belonging to the Earls of Southampton, to which the room in question appears to belong. For some unexplained reason this apartment has been called "the chapel;" but after a careful search no evidence of its having been applied to such a use could be detected. It has a fine framed and moulded ceiling in oak timber, flat, and divided into six large panels, having one longitudinal and two transverse moulded girders of large dimensions, with wall plates to correspond; the mouldings are the beads and hollows used at about A.D. 1500, and not the quarter rounds of the time of Elizabeth. The panels are filled in with joists, which carry the boarding above. On the north side an opening exists, which appears to have been a large window, and at the west end of the south side is a pointed doorway, now filled up. In consequence of the removal of the ancient roof, this ponderous ceiling was placed in great jeopardy, and its fall is only prevented by shoring.

Dr. Bell read an elaborate paper on the ancient embossed alms dishes of Germany, of which specimens were exhibited. The centre of these dishes is generally occupied by scriptural and legendary subjects, and around this an inscription, consisting generally of a word or initials, several times repeated; Dr. Bell proved that some of these inscriptions were applied by the workmen, indiscriminately, to many subjects.

Mr. Pretty, of Northampton, communicated some account of the remains of Roman buildings at Gullett Cope in that county, situate near the fifty-sixth mile-stone on the Towcester road. These remains appear to be of some extent, and Mr. Pretty promised a fuller account as the exploring advanced.

Mr. G. R. Wright exhibited a cast of the sculptured boss in the centre of the vault, under the Staunton Tower at Belvoir Castle, mentioned at a former meeting, and reported in a late number of THE BUILDER.

A communication was received relating to the contemplated destruction of the church of Fisherton, in the immediate suburb of the city of Salisbury, and the proposed removal of the site of the new church to the vicinity of a future railway station. A church is mentioned in Domesday Book as existing here, and a general feeling existed in the meeting that steps should be taken to prevent, if possible, its unnecessary demolition.

The meeting terminated with a paper on the history of horse-shoeing, by Mr. H. Syer Cuming, which contained some curious matter.

DEATH OF SIR WILLIAM ALLAN, R.A.—We regret to have to announce the death of Sir Wm. Allan, the President of the Royal Scotch Academy, in Edinburgh, on Saturday last, in his 68th year. He had for a considerable time been suffering from bronchitis. The local papers say he first embarked in the humble calling of painting devices on carriages.



DOORWAY OF ST. LAURENZ CHURCH, NUREMBERG.



DOORWAY OF ST. LAURENZ CHURCH, NUREMBERG.

The primitive church in Nuremberg, dedicated to St. Lawrence, was demolished in the year 1274, and the present edifice begun to be erected in 1282 by the same architect who built the choir of St. Sebald's. The choir was not commenced until 1403, and in 1443 Paul Rechter directed its progress until 1486, when

it was entirely completed by the architect Conrad Streitziger, of Ratisbon. The entire expense amounted to 13,310 guilders. It was consecrated in the same year by the Bishop of Bamberg. The western end is composed of two square towers to the height of the central part, and connected with it by a light open parapet. Plain spires rise above this from each tower, nearly similar in design, to the

total height of 270 German feet. A rose window fills the front, over the elaborated entrance seen in the adjoining engraving. The interior has had a new stone pulpit erected from the design of the Chevalier Heideloff, in the year 1839, who has also restored the high altar, and the admired work of sculpture by Veit Stoss, representing the Salutation.

There are many fine tombs of knights and



noble ladies, but the most interesting monument of art contained in the interior is the *Sacraments häutein*, having been, as its name implies, the depository of the sacred vessels used in the sacramental ceremony. It is the work of the renowned Adam Kraft, and watermarked by him in the year 1506, after five years of continuous labour. The place it occupies is between two of the side columns, where it rises to the height of 65 feet, and being apparently obstructed by the vaulting of the arch, the finial bends forward its foliated crest, and droops over the monument like the snow-drop. The representation of the History of the Saviour is displayed in small carved figures in the various stages, and the entire work has such an airy and fanciful lightness that it might at first sight be supposed to be made of some tender and plastic material, instead of stone, which it really is.

The windows are well filled with stained glass of the epoch, and afford the visitor of its interior a rich treat of this decorative art. The entire edifice, both inside and outside, is cited as one of the most highly decorated examples existing in Germany. The engraving we have given of the principal entrance fully warrants the belief; it is reduced from a large drawing of its manifold enrichments made by the Chevalier Heideloff, to whom the restorations have been judiciously confided. The two upper rows of sculpture in the tympanum represent the last judgment; the lower one, the sufferings, burial, and resurrection of Christ. In the panels below the transom will be found the wise men's offering, the judgment of Solomon, &c.

Since the year 1531 the church has been devoted to the Lutheran service.

#### THE RENAISSANCE OF ORNAMENTAL ART.

ON Friday evening in week before last Mr. Ralph Wornum lectured at the Government School of Design, Somerset House, "On the Origin and Peculiarities of the Renaissance Period of Decorative Art."

Having reviewed the art of the middle ages, said the lecturer, we now enter on the modern periods of ornamental art. We have now only to consider styles of ornament which have arisen in rapid succession during the last few centuries,—in fact since the epoch of the Reformation, and the discovery of printing and of gunpowder—all of which had a most important influence on the progress of ornamental as of every other art.

Towards the establishment of the municipal in place of the feudal system, the discovery of gunpowder greatly contributed, by changing the art of war, and giving more leisure for the development of commerce and manufactures,—the arts of peace; and the invention of printing disseminated a community of ideas, and thus secured a steady intellectual advancement, which ultimately developed that general activity in every department of art and science commonly known as the revival, or, in more technical language, the re-birth—the Renaissance,—a term in its widest sense simply denoting the revival of the arts and sciences of the ancients,—such as, in architecture, the restoration of the classical orders, more particularly in that style called Italian, in which the various orders are combined,—but, with us, in the meantime, limited merely to the revival of decorative art.

Hitherto he had always had some new development of forms to illustrate; now, he had chiefly to point out a peculiar selection from, or combination of, what has previously existed. This is the beginning of style, theoretically speaking,—the commencement of selection—the first evidence of *dilettanteism*: the thing was done for its own sake, and not for any ulterior object.

From the distinct schools of ornamental art which flourished together in Italy in the twelfth century—the Venetian in the north, and the Siculo-Norman in the south, especially in Sicily, and both Byzantine—both brilliant in style,—from these and a more general introduction of the imitation of natural forms, arose that style now called "Renaissance;" but as it steadily advanced, those peculiar forms now termed "Elizabethan" in this country, and consisting of pierced and scrolled

shields, solid and interlaced scrolls, and fiddle-shapes, so common in articles of jewellery and other manufacturers in relief, of the sixteenth century, were introduced.

The principal features of this style are its foliage or foriage, and its tracery or fretwork, this latter preserving pretty closely the Saracenic character of Cairo and the Siculo-Norman, though not, as afterwards, of the Moors in Spain.

Ornament followed the general progress of art; for the improvement, or rather the new development of ornamental design is simultaneous with the revival of art itself: the great painters and the great sculptors were the great decorators.

Though both in spirit and in fact a revival, yet the Renaissance has its original elements as well as its selective character,—namely, the (here so called) Elizabethan forms, an essential part of its complete development as prevailing in the sixteenth century. In short, to speak as it were paradoxically, the chief peculiarity of the Renaissance is its generality.

The lecturer then proceeded to consider its general details, and point out its progressive epochs and eras, as marked by examples of its most prominent and special productions, commencing with the beginning of the thirteenth century (1204), when Constantinople was taken by the Venetians,—an event which introduced into Italy hosts of Greek artists, of whose influence on the development of the arts Vasari, with more truth than he generally has the credit of, records for us many details.

In course of this review, the influence of the discovery of the art of engraving from metal plates, incidentally made by Tommaso Finguerra, while taking sulphur casts of his engraved plates, and printing from the former on damp paper, to prove the effect of the design, was adverted to; as also was the fact that many of the great artists of Italy were professionally decorators, and only, as it were, collaterally painters; some of them, the latter, not till middle-aged,—Frafficia and Michelangelo, for instance, having only commenced to paint when nearly 40 years of age, though, like so many others of their compeers, men of very extensive and general art and other accomplishments.

The skill of these decorators was illustrated by Mander's anecdote about the dissipated Mabuse selling the silk damask robe in which he was to appear, with his patron, before the Emperor Charles V., and astonishing the emperor with the magnificence of his dress, which turned out, to the imperial touch, to be nothing but a paper pattern.

In recapitulating the general features of the Renaissance style, the lecturer stated that in the present lecture he only wished to convey a fixed practical idea of what the Renaissance is, and the limits of its generality. I think, he observed, that we must admit four varieties of this style,—one of these in particular, namely, the third, being the most complicated and characteristic, and, indeed, such as it is practised in France, so generally at this day that French is almost a synonyme for Renaissance.

The first variety is the *tre-cento*,—a combination of Byzantine and Saracen, i. e., not very far removed from the Siculo-Norman, before the complete development of the arabesques and Elizabethan forms.

The second is the *quattro-cento*,—that in which fruits and flowers, and the grotesque and arabesque forms predominate.

The third is the Renaissance *par excellence*, or the technical Renaissance, in which all the elements are fairly combined, namely, conventional foliage and tracery, and even occasionally symbolism; natural foliage, fruits, flowers, and the symmetrical arabesques; grotesque and natural imitations of man and animals; and the pierced shields and scrolls, fretwork, and every variety of the classical orders.

The fourth variety or style of Renaissance ornament, is the Elizabethan, in which certain elements are paramount, namely, the pierced shields and scrolls and fretwork.

This is a great complication, and accordingly the Renaissance is a style much more easily illustrated by examples than described. The lecturer remarked, however, that a design, he believed, can scarcely be said to belong to the technical Renaissance if without tracery or interlacings of some kind, and that such inter-

lacings are least prominent in the quattrocento, and, of course, not prominent where all the elements are combined in one design. He did not wish to lay down these varieties as absolutely distinct styles worth separating in practice, but simply to convey a more palpable idea of the Renaissance itself; though all quite sufficiently marked to practise, if desired,—the trecento, perhaps, the least.

The lecture concluded with a recommendation to the students to take example by the Renaissance artists, but to imitate their method rather than their designs; and he congratulated them on the fact that the recent exhibition at Somerset House had displayed sufficient talent to convince him that he could not recommend anything that the students, both female and male, were not well able to carry out.

#### DRAINAGE AND THE THAMES.

As one of the late Commissioners of Sewers for the City of Westminster, and parts of Middlesex, I took some interest in the proceedings, and endeavoured to make myself practically useful, that is to say, as far as the theoretical debates and my own professional time would admit. I have naturally, since that commission was so cavalierly dismissed, looked anxiously for the emanation of some grand plan from the two commissions which have since been appointed for the general drainage of the metropolis, but have looked in vain. The fearful nuisance which has been gradually created by the abolition of cesspools, and by the system of dilution and flushing, thereby making the river the receptacle of all the excrement which was formerly collected and carted away, still exists, and seems as if it were doomed to continue. It is admitted by almost everybody, that the present system is bad and seriously injurious to health; and I for one made up my mind the last voyage I took from Battersea to London-bridge on poor adulterated Father Thames, never to allow my olfactory nerves to be so punished again: the odour was disgusting, and as I do, Mr. Editor, consider it a great annoyance to be deprived of that agreeable mode of transit, I will endeavour to suggest that which I believe to be a practical remedy for the abomination. I may be wrong: if so take the will for the deed, especially as no comprehensive system appears yet to be conceived by the commissioners, who I suppose to be waiting for the Ordnance map, as if that would tell them more than is known already, namely, that the Thames, as formed by nature, is the only proper course of drainage for the metropolis, but is certainly not the proper receptacle for its excrement. The Ordnance map may regulate all future local drainage, but it would be a sinful waste of money to do away or not use that which has cost millions to accomplish. Such being the case, Mr. Editor, I will ask why two main sewers or tubes cannot be constructed in the bed of the Thames between high and low-water marks, at such a depth only as would always take the drainage, whatever might be the state of the tide,—one to receive the outlets of the present sewers from the north bank, the other from the south bank. The former could be carried, say from Putney-bridge (or as much higher as you choose) down the course of the river, to the Isle of Dogs, which might be crossed then again in the bed, and discharge itself in the Plaistow Marshes for the purpose of collecting the manure with an overflow into the river beyond Woolwich; the sewer on the south side to commence at the same spot, and be continued in the bed to the east end of Greenwich, then cross the land to Woolwich Reach, and again in the bed, with a discharge into the Plumstead Marshes, to collect the manure, &c., as described on the north side.

By adopting this principle, and commencing the construction at the marches, it appears to me that no difficulty would arise that could not in these *civil engineering* days be easily overcome: if the bed of the river could not be followed all the way, the course of the sewers might be diverted where necessary; it would generally interfere less with public convenience than any other plan (except the deep tunnel scheme, which to my idea presents other difficulties besides the doubts of geologists); it



would avoid the necessity of reversing the current, if any, of the existing sewers, the outlets of which could be easily connected with the new sewers, and they could be readily entered and ventilated by shafts, which might also serve as overflows in case of floods.

CHARLES MAYHEW.

#### ARCHITECTS' EDUCATION.

WITHIN the last few years the young architect's education has been considered worthy of more attention than was formerly given to it. If an architect possess not the æsthetic spirit of composition combined with chronological accuracy, but if he merely depend on his knowledge of construction and the routine business of the office and the drawing-board, he will fall short of the standard of acquirements indispensable for his success in his profession; yet how many have gone from the expiration of their articles to the close of their practice in unhappy ignorance of the artistic section of their art,—fostering the erroneous conceptions of the unprofessional through their inability to combat them. How many incongruities would have been spared if the architects who carried them out had had the power of convincing their well meaning, but mistaken patrons, of the inapplicability and sometimes absurdity of their wishes.

Although extravagancies, anachronisms, and illogical compositions, escape criticism in many instances, the gradual spread of art-knowledge through amateurs is such, that the architect will soon not dare to practice without possessing the just qualifications for his profession; even if the diploma be not insisted on, the absolute dread of censure will force him into retirement, and we shall less often see the offensive distortions formerly and at present common.

The student must acquire, by the minute examination and comparison of existing works, that power of discrimination which, founded upon judicious reading, will create and enlarge in him the true power of harmonious composition. As this cannot be acquired simply by knowledge of the mechanics and construction of a building, or by the utmost familiarity with the several operations necessary in its completion, it becomes necessary that the student, after having well grounded himself in these different qualifications, which may be regarded as the foundation upon which he is to build his succeeding knowledge, should seek the consolidation of his possessed knowledge and the creation of new ideas, in those countries where architecture has been most cultivated since the revival of art. With the experience of all this before him, the student can easily foresee the impracticability of his success unless he carefully cultivate the powers of his mind, not only in his professional reading but in general and classical literature, and also by travel extend his knowledge of the varieties of style, and remove the feelings of local prejudice which can exist as well in art as in the social system.

M.

#### MASONS' PROVIDENT INSTITUTION.

THE fourth annual meeting of the above institution was held on the 22nd ult., at the City of Westminster Institution, Great Smith-street, Mr. Wm. Tite, F.R.S., President, in the chair, for the purpose of receiving the annual report, and other business of an encouraging nature, showing the progressive state of the institution.

Several letters were read expressive of its utility to the trade, and giving promises of support, several provincial towns having already commenced their subscriptions. The objects of the institution were feelingly advocated by the chairman, as also by Mr. Wm. Freeman, treasurer, Mr. Thos. Piper, and Messrs. Dix and Clay.

It is intended to hold a public meeting of the trade in May next, in support of its objects, the president of the institution kindly consenting to preside. Numerous additional donations and subscriptions were announced, and the auditors' report showed a balance, exclusive of these, of 279l. 2s. 3d., including 250l. 4s. 9d. 3 per cent. consols.

The annual votes of thanks were accorded to the officers of the institution and to the president; and the meeting separated with a conviction that every true mason should exert himself to promote the interests of the institution.

#### THE GREAT EASTERN METROPOLITAN CEMETERY.

PROPOSED BY THE BOARD OF HEALTH.

THE inquiries and deliberations of the Board of Health have resulted in the proposal to buy up all the metropolitan intramural graveyards or other places of burial, and even all the suburban cemeteries, under the authority of an Act of Parliament, and to shut up the whole, or at least the intramural, and plant all the grounds with appropriate trees and shrubs, for the absorption of the otherwise deleterious fluids and gases given off by the bodies of the dead. The Kensal Green Cemetery, however, they propose to enlarge into a Great Western Cemetery, with provisions for easy access by economical transit from the western district, while for the eastern, they propose the formation of a new extramural cemetery of great extent, in which they estimate that under the comprehensive and compulsory system recommended by them, nearly two-thirds of the metropolitan dead would be buried. The site of this great field of sepulture has been already selected as "singularly eligible," though not named; but the *Observer* (a pretty good authority in the present instance), calculates that it must be at Erith.

A special public board or "Metropolitan Interment Commission," they think, ought to be appointed (as elsewhere abroad), with the exclusive management of metropolitan funerals. Receiving houses on the banks of the river would be established, with steamers purposely fitted up to convey the dead to the new cemetery, which, as described or planned, with all the "gentle slopes and undulations" of its anciently consecrated and still sacred, silent, and solemn "abbey land," befittingly planted with trees and shrubs of dark and evergreen foliage,—its weeping willows and its gaunt and solemn poplars,—would appear to be in truth an Elysian field, which, as observed, "would not have its parallel in the whole world, and would put to shame even 'the City of the Silent' at Constantinople."

Under one comprehensive and simple general system of sepulture such as this, it is estimated that a great reduction in the total expense of conducting funerals would be effected.

"The present actual total charges to families for the funeral of adults," report the commissioners, "as ascertained from an examination of undertakers' bills, compared with what may be accomplished on the intended plan, is as follows:—

The cost to the gentry for each funeral of an adult is 100l., the estimated cost under the proposed system of interments is 38l. 10s., being a saving of nearly two-thirds. First-class tradesmen under the present system 50l., under the proposed system 16l. 10s., being a saving of more than two-thirds. Second-class tradesmen under the present system 29l. 10s., under the proposed system 9l. 9s., being a saving of more than two-thirds. Artizans under the present system 5l., under the improved system 2l. 10s., being a saving of one-half. The total annual saving upon the whole of the interments of the metropolis may be estimated in round numbers at 350,000l.

We regard it as an essential principle of the proposed system, that the expenses of such interment shall be comprised in one sum, fixed upon according to a series of pre-appointed and graduated scales," the "whole expense of each funeral to be included in the charge fixed for its class," as elsewhere explained, "and to be paid for in one sum."

"In carrying into effect a general system of extramural interment for the metropolis," continues

Although we would be the last to start objections for the mere purpose of throwing them like stones in the way of any train of speedily realizable and comprehensive suggestions likely to bring the system of intramural burial forthwith to its terminus, we must here remark, that to insist on the whole expense of a funeral being paid for in one sum by the great mass of the industrious classes would be to insist on an utter impracticability. We know it to be one of the few merits which must be allowed to the present order of undertakers, in their dealings with those whose livelihood is supported by the receipt of weekly wages, that in such cases the expense of funerals is paid for in small weekly instalments, and these even often not called for until the pressure of other heavy outlay attendant on the deathbeds of relatives has been recovered from, or materially relieved. In fact, the industrious classes are frequently obliged to forego the offer of more moderate charges for ready money, or payments in one sum, in order to obtain respectable burial for their relatives with a practicable mode of payment, however otherwise oppressive. As to undertakers themselves, by the way, would they be compensated like the clergy and others for their loss of fees and business? Or what is to be done with them, as a class, for the "commission" bury them in their own coffin,—if it be really meant that the whole cost and conduction of funerals is to be taken out of their hands, all at once, by a Parliamentary Act, rendering all burials illegal, besides those conducted by the public commission?

the report, "it is obvious that a staff of persons of superior information and intelligence will be required to make arrangements for funerals, to superintend the removal of the bodies, to visit the houses of the poor when death occurs in single living and sleeping rooms, to give the necessary instructions to the survivors for their own safety," and a multiplicity of other duties, "besides assisting with reference to the funeral and other matters," and "directing," "superintending," and "seeing," to a host of other things. Nevertheless, "it is estimated that for the performance of these duties one chief officer of health, with eleven assistants, would suffice for the whole of the metropolis," with its thousand deaths a-week, or one, in fact, every tenth minute, day and night! There is surely some tremendous error here.

The only other extract we can afford room for relates to the immediate outlay requisite for carrying this vast and certainly most spirited, sweeping, and magnificent scheme into effect.

"For the construction of one large eastern waterside cemetery, reception houses, &c. ....	£250,000
For the extension of the Kensal-green cemetery, to constitute one large western cemetery. ....	50,000
For the purchase of the whole of the existing metropolitan cemeteries and other burial grounds. ....	400,000
	<hr/> £700,000

This sum, borrowed on the security of the dues, say at 5 per cent. interest, would be an annual charge of . . . .	£35,000
The estimated establishment charges on cemeteries, inclusive of the clergy, funeral rites, and officers of health, and compensation for loss of fees, would be about. ....	77,000

Total annual amount of expense of cemeteries. ....	<hr/> £112,000
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On Wednesday night last, a meeting of the medical practitioners of the west-end was held at Dr. H. Bennett's, Cambridge-square, Hyde-park, to petition Parliament for the immediate and total abolition of intramural sepulture, and especially for the closure of St. George's burial-ground, Hanover-square. Dr. Chowne was called to the chair. Drs. Gooldeen, Tilt, Douglas, Powell, Messrs. G. A. Walker, Webber, &c., were present. Various resolutions were passed, including one recognizing the services of Mr. Walker, but we have not space for particulars.

#### NOTES IN THE PROVINCES.

PLANS of a new training school for mistresses, proposed to be erected at Hockerhill, Bishop's Stortford, for the diocese of Rochester, have been prepared by Mr. Joseph Clarke, architect. The design is in the Tudor style, and the building is to accommodate sixty pupils in training.—The Oxford city authorities are to supply the proposed baths and washhouses with water gratis, and the gas company have also most liberally offered to light the establishment, free of all charge. This is indeed an example worthy of general imitation.—Another memorial of the late John Dowager is to be put up in the form of stained glass, namely, in the five chancel windows of St. Michael's Church, Coventry, at a cost of about 2,000l. —A stained-glass window, presented by Messrs. Chance Brothers, to the church at the Church of England Cemetery, Birmingham, has been set up in the chancel of that edifice. By the liberality of these gentlemen two side-windows of stained-glass of mosaic work have likewise been added.—Two new Roman Catholic churches are to be erected, one at Studley, and the other at Coughton.—The shareholders of the Whitehaven Gas Company, appear to be finding their affairs, since they reduced their price to 4s., to be getting steadily into a more and more flourishing condition. In allusion to their highly satisfactory state at last half-yearly meeting, the *Carlisle Journal* reports, that "the extensions rendered necessary to meet the increasing demand for gas have been completed, at a cost of upwards of 2,000l., paid out of the profits of the works; and in addition to the payment of so large an amount [from an original capital of 8,000l. only], there was a balance upon the books to



the credit of the company, at the close of year, of not less than 500*l*. The original capital of 8,000*l*. is thereby augmented to 10,000*l*., being an increase of 5*l*. upon each original share of 20*l*.—The ancient bridge of Yarrow—supposed to have been erected by the Picts or Romans—has been destroyed; one of its arches having been swept away by a recent flood.

#### ACCESS TO THE WELLINGTON STATUE ON THE ARCH.

THE public are greatly indebted to you for many improvements in the arrangements of our public buildings and national monuments, which you ably point out.

As I daily look out of my window upon the statue of the captain of the age, it has often occurred to me that, from its great altitude, the beauty and symmetry of both horse and rider are completely lost; for it is only by the assistance of a telescope or magnifying glass that the execution in all its parts can be seen or appreciated. I would suggest a mode to overcome this, which, I am sure, would not only gratify the public, but the great influx of foreigners whom we may expect as visitors in 1851,—viz., to have a gallery surrounding the base of the statue, with balustrades, approached by an invisible staircase, which would not only be a great source of attraction, giving an excellent view of both parks, but would enable the spectators to examine this enormous piece of sculpture. The price of admission would soon remunerate the cost of the alteration, and might further enable the opposite arch to be surmounted by some appropriate statue, which would have a grand effect, so desirable in the neighbourhood of royalty.

When we consider the vast resources of this great country, we are at a loss to account for the dearth of taste in our public buildings and monuments, which leaves us so far behind our neighbours on the continent. Let us hope, however, that a bright day is beginning to dawn upon us, and that public taste, assisted by royalty and urged by your excellent publication, will still improve our metropolis, so as to make it the pride and admiration of the world.

JOHN LAURIE.

Hyde-park-place.

#### ENGRAVINGS AFTER SKETCHES BY LANDSEER.

MR. GRUNDY, of Regent-street, has recently published some clever engravings after three sketches by Mr. Edwin Landseer, viz.: "Napoleon's Eagle," "The Huntsman and Hounds," and "Coming Events." The original of the first, we mentioned in our notice of Mr. Grundy's winter exhibition (still open), as being "full of poetry," and so it is; though in the engraving the greater distinctness given to the shadow of the dead emperor in the setting sun, puts the occurrence more out of the range of reason than in the drawing. The eagle, perched on a rugged rock, and gazing on the sinking luminary, is a fine impersonation of troubled sadness.

"The Huntsman and Hounds," from a free pen and ink sketch, singularly spirited and characteristic of the artist, is so exactly a transcript of the original, the sportsman's coat marked too by red hatching, that it is difficult to tell one from the other.

#### PANORAMIC TOUR TO THE BRITANNIA BRIDGE.

IN the building adjoining the Polytechnic Institution, Regent-street, a theatre has been constructed by Mr. Thomson, Architect, wherein is now being exhibited a series of paintings, illustrative of the principal places passed in a journey from London to the Menai Straits; namely Primrose Hill with the railway as a starting point, Wolverton Viaduct, Birmingham, Coventry, Chester, Conway Castle, and the Britannia Tube. The views are painted in distemper, by Mr. J. W. Allen, the well known landscape painter, and are for the most part very beautiful: we would particularly mention Chester, seen by moonlight.

We would suggest the addition of another picture to terminate the exhibition, namely, a close view of the bridge, which should give spectators a more startling notion of the size

and construction of this engineering wonder of our day, than is conveyed by the general representation of it. The curtain which falls between each painting, shows a map of the country,—a clever introduction. Much of the effect of the pictures depends upon the excellence of the lighting, which has been wholly arranged by Mr. Leslie, and appears to be under admirable control.

The decorations before the curtain, including some very clever reliefs, lighted from behind, are by Mr. E. T. Paris. The explanatory observations which accompany the pictures may be improved, and made to afford as much information as the views give pleasure.

#### Books.

*Report of Transactions and Works executed by the Honourable the Commissioners of Sewers of the City of London in 1849.* By W. HAYWOOD, Surveyor to the Commission. Brewster and West, Dowgate.

*A Plan for Removing and Deodorizing the Sewage of London, and applying it to the purposes of Irrigation.* By HENRY STOTHERT. Printed for private circulation.

MR. HAYWOOD's report goes fully into his subject, and shows that the sanitary improvement of the City is pursued with considerable energy. The reporter concludes by saying that the time is not remote when he shall be able to state that every street, court, and alley has been drained, and that sufficient sewerage exists to facilitate the speedy abolition of cesspools throughout the whole city. Mr. Moffat's establishment for the manufacture of the sewage into dry portable manure, we perceive, is in progress at Puddle-dock Sewer, in place of Paul's Wharf, and will shortly be in actual operation.

Mr. Stothert's "plan" is one of those presented to the Metropolitan Commission. It mainly consists of a forcing apparatus connected with cesspools and conducting the sewage through elevated iron pipes or arteries to a stirring apparatus, where it is mixed with deodorizing materials, and then distributed throughout the horticultural and agricultural districts at some distance from the metropolis. The author estimates the cost of removal at 748,080*l*.,—of mixing and distributing at 1,528,440*l*.,—and the annual cost at 198,155*l*.; while the profit would be 3,801,845*l*., at what he regards as a moderate calculation. (?)

*Sanitary Progress: being the Fifth Report of the National Philanthropic Association for the Promotion of Social and Salutiferous Improvements, Street Cleanliness, and Poor Employment.* Second Edition. Hatchard and Son, Piccadilly.

THIS is a detailed and terrible record of the state of things in the middle of the nineteenth century; but it records also all that is being done by way of antidote to the bane; and, amongst other philanthropic efforts, and good works, an account, of course, of "the street orderly system," organized by the Association itself. The report is much enlarged, and seems to comprehend numerous particulars, disinterestedly collated from all quarters, and on every branch of "Sanitary Progress." Some of the engravings of low lodging-houses in Church-lane and elsewhere, give a fearful, and we do believe a truthful idea of the state of wretchedness in which multitudes vegetate, in a sort of smouldering vitality that can scarcely be called living, throughout the metropolis.

*Description of a Roman Building and other Remains lately discovered at Caerleon.* By JOHN EDWARD LEE. London: J. R. Smith, 4, Old Compton-street.

MR. LEE, the writer of this little work, and also the etcher of the plates, is the chief founder of the Museum of Antiquities at Caerleon, where, though itself but a small town, more local antiquities are preserved than in any place in England, except at its other extremity in Newcastle. The present etchings are intended as an Appendix to the "Roman Antiquities of Caerleon," published some years since. Some of them have already appeared in the "Archæologia Cambricensis." The profits, if any, are to be devoted to the funds of the Museum of Antiquities at Caerleon.

#### Miscellanea.

GLASGOW ATHENÆUM.—On Wednesday in last week, a grand *soirée* of members and friends was held in the City Hall, Mr. Sheriff Alison in the chair, when about 1,200 ladies and gentlemen were entertained with a variety of good things, intellectual as well as physical, and the evening passed off with great *clat*. Sparkling and refreshing flows of eloquence were poured into open and thirsty ears by the president—Sheriff Alison, and by Sheriff Bell, Professor Nichol, Dr. Cumming, the Lord Provost of the city, and others; and the members of the Philharmonic Association, connected with the Institute, besides a military band, and a choir of glee singers, still further enlivened and harmonized the social intercourse of friends and members. In course of his address Mr. Alison said he was strongly impressed with a sense of the importance of such an institution as this not only to the members, but to all within their influence. Experience, he remarked, teaches us that it is impossible for a highly educated class to communicate at once a taste for literature and art to the working classes by telling them to do this, or read that, or go to the theatre, or anything of the sort: it cannot be done. The desire, the taste, the habit must be communicated from the highest educated class to the less educated, by going through all the intermediate classes. It is thus, and thus only, the people can be elevated, and knowledge diffused, until it reach every fireside, every mechanic's shop, every cottage in the land. Sheriff Bell expatiated with his usual eloquence on the virtue of humility and diffidence amongst those benefited by such an institution, and on the necessity of a cultivation of the domestic and social affections to the attainment of happiness. Dr. Nichol maintained, in course of his remarks, that a narrow and exclusive absorption of the mind by business, or one line of business, is in the main fatal to higher success in business itself. Is it not plain, he urged, that the power to deal with emergencies must reside exclusively in the practiced condition, the readiness of all the faculties for action? And how reach this unless through general culture, through the habit of dealing with considerations external to any daily and narrow routine? We have a most kindly remembrance of Glasgow and its Athenæum.

PUBLIC WORKS AND WOODS AND FORESTS.—Lord John Russell has moved the introduction of the bill for the better management of the Woods and Forests and the Public Works. The direction of the latter is to be in the hands of a special political officer, to be called the commissioner of works, who will have to consider and propose to the Government and the Commons as to whatever expenses may be called for or necessary to carry on public works, such expenses to be charged on the public revenues at large, and not taken out of the crown revenues as occasionally heretofore. The Commissioner of Works is to have the salary (2,000*l*.) now received by the First Commissioner of Woods and Forests. The latter department is to consist of three Commissioners of Land Revenue, two of them with salaries of 1,400*l*. and 1,000*l*. respectively, the third to be a member of Government, without special salary. Thus the question of ways and means for public works as yet remains *statu quo*, unless, indeed, it be left to the Commissioner of Works to consider and propose on the subject to the Government and the Commons.

ARTISTS' CONVERSAZIONE.—The second evening meeting was held at the Freemasons' Tavern, on Saturday, the 23rd February, and was well attended: the committee for the evening were Mr. John Le Keux, Mr. Shepherd, and Mr. S. R. Solly. A number of drawings and other works of art were exhibited, including a folio of remarkably broad and beautiful sketches of country, by Mr. Bennett, a name which has but recently come before the artistic world.

ELECTRO-TELEGRAPHIC PROGRESS.—The submarine telegraph between Dover and Calais is already almost realized. The tower for the battery, offices, and general works, at Dover, is nearly erected, and the insulated wires are in a forward state of progress, to be sunk across the channel in course of the present month.



**PROJECTED WORKS.**—Advertisements have been issued for tenders, by 5th inst., for the erection of a grand stand and stand-keeper's house on Bedford race-course; by 13th inst., for the formation of 9½ miles of the Newcastle and Carlisle Railway, Alston branch, in three contracts; by 26th inst., for 2,520 loads of English elm timber and 27 elm trees for pumps, for Mr. Majesty's Dockyards; by 14th inst., for paving and other works at the Foundling Hospital estate, St. Pancras; by 2nd inst., for the erection of the Lincoln Penitent Females' Home; by same date, for re-arranging seats and other alterations in St. Andrew's Church, Worcester; and by 12th inst., for the erection of a farmstead near Hull, on the Charterhouse estate.

**THE 1851 EXHIBITION.**—The space contemplated by the Royal Commissioners being equal to half-a-mile in length, and 320 feet in width, no time ought to be lost (as you said last week) before commencing a building of such extent, to be completed by the 1st January, 1851. As regards the expense, which will necessarily be very great, I would suggest that the Government may fairly advance 100,000*l.*, to be repaid by the sums raised by admissions. —W. J. D.—The Commissioners have fixed upon the 1st day of May, 1851, for opening the exhibition. The site granted for this purpose is on the south side of Hyde-park, lying between the Kensington drive and the ride commonly called Rotten-row. From the approximate estimate which the Commissioners have been able to make, they believe that the building ought to cover a space of from 16 to 20 acres, or about one million of square feet. The building will be fire-proof. A classified list of objects which may be admitted has been published.

**NEW RAILWAY HOTEL IN HULL.**—A new hotel has been erected in Hull, close to the railway terminus, of considerable size and pretensions. It was erected from a design by Mr. Andrews, of York, under the superintendence of Mr. Botterill. The contractors were Messrs. Hutchinson and Mr. Siminson. A correspondent has forwarded to us the following particulars:—The building is in the Italian style of architecture. The central parts of the two principal façades are recessed: the ground and first floor stories have arcades of the Doric and Ionic orders, surmounted by an attic order in the second floor story, and crowned with a massive cornice, with consoles in the frieze. The building is faced entirely with stone, from the quarries of North Anston, near Worksop, the same as is employed in the new Houses of Parliament; and the windows of the principal façades are of polished glass, each window containing but two plates, one to each of the sashes. The principal rooms on the ground floor are disposed around a quadrangle, which forms a central hall 60 feet square, covered with skylights of rough plate glass, below the windows of the first floor, and supported on girders of cast-iron. The grand entrance opens through a vestibule into this hall, which has on three sides open arcades with corridors, from whence the rooms are entered. The first-class refreshment-room is 44 feet by 24 feet; ladies' ditto, 24 feet by 21 feet; second-class ditto, 24 feet by 17 feet; coffee-room of T form, extreme dimensions, 51 feet by 33 feet; commercial-room, 33 feet by 25 feet; and smoking-room, 22 feet by 20 feet.

**LIVERPOOL ARCHITECTURAL SOCIETY.**—The fortnightly meeting of this society was held on Wednesday evening, last week, the Rev. D. James in the chair. A discussion took place relative to Dr. Chowne's "air-syphon" system of ventilation; but the general opinion of the members seemed to be not very much in its favour. A paper was read by Mr. T. Duncan, on "Rubble Walling."

**INSTITUTION OF BUILDERS' FOREMEN.**—Mr. W. Cubitt will take the chair at the annual dinner, to be held on the 3rd of April. We would direct attention to the advertisement in another page.

**CLEAR SPACE FOR ST. PAUL'S.**—Acting on a suggestion of ours, thrown out last year, Mr. Barber, a member of the common council, is taking active steps to obtain the removal of the wall and iron railing round the front and sides of St. Paul's. We will refer to the matter next week, with our best wishes for his success.

**THE BUILDERS' SOCIETY DINNER.**—The Builders' Society had their annual London dinner at the Freemasons' Tavern, on Thursday in last week; when Mr. Sheriff Lawrence presided with much *bonhomie* and ability. Mr. Lee (the president of the society), Mr. Thos. Cubitt, Mr. W. Cubitt, M.P., Mr. Piper, Mr. W. Herbert, Mr. Ansdell (the actuary), Mr. Britton, &c., addressed the meeting; and Mr. Grimsdell, Mr. Hayward, Mr. Sowerby, Mr. Nesham, Mr. Munday, and many who ought equally to be mentioned, were present. A gratifying compliment was paid to THE BUILDER, and a pleasant evening was spent.

**A HOME OF TASTE.**—Engravings shed their spirit over a household; the calm portraits of the great and worthy dead exercise a great influence over me. I could look on those over my own fire-place until they seem neither absent nor departed, but living yet. Every good picture is the best of all sermons and lectures. We imbibe the soul of the picture; our heart is a stream where the portrait is imaged. If we could truly school minds, we should exercise faith in good pictures. The humour and the cheerfulness of one, the serenity and contemplative quiet of another, the historical department of another; thus we may make our parlour an Art-Union—a Vernon Gallery; and when pictures are to be obtained so readily, it is scarcely pardonable if we do not. The sense informs the soul. Whatever you have, have Beauty. Let Beauty be on the paper on your walls. It is as easy to choose a paper suggestive of the lovely in colour and form, as the uncouth. Why should not every household object be sanctified with this grateful charm? Each chair, each table, each tea or chamber service, and every object for kitchen or parlour, for the home of the poor man, artisan, or mechanic, I would have them all worthy of a Home of Taste.—The Public Good.

**CAMBRIDGE ARCHITECTURAL SOCIETY.**—The second general meeting was held on the 21st ult., the Rev. the President in the chair. The president delivered an address, in which, adverting to the important services rendered to the cause by the older societies, and the rapid progress of the study, in the revival of which they had been chiefly instrumental, he showed that the consecration of art to the service of religion is a duty or principle acknowledged by all branches of the church from the first, but very generally lost sight of in this country until it was re-asserted by these societies, for the success of whose exertions he appealed to the many eminent artists in the various branches of ecclesiological science at home and abroad. In conclusion he suggested that the province of this and later societies is to hold the ground which the earlier societies have recovered, and to furnish to such as desire it the opportunity of prosecuting a study which is daily acquiring increased interest, and ignorance of which will soon come to be regarded as a reproach to a man of education.

**CAMBRIDGE ANTIQUARIAN SOCIETY.**—At a meeting held on the 18th February a paper by Mr. Albert Way was read, "On Seals used to authenticate the passes of labourers, &c., when leaving their usual place of residence, in accordance with the statute 12 Rich. II., 1388." By this statute it was enacted that no servant, labourer, beggar, or vagabond, male or female, should depart at the close of his term of service out of the hundred, rape, or wapentake where he was dwelling, in order to take service or dwell elsewhere, or on pretence of distant pilgrimage, unless provided with a letter patent containing the cause of his journey, and the time of his return, if his absence were temporary. This pass was ordered to be sealed with the king's seal, assigned for that intent, and deposited in the hands of some proper person (*probi hominis*) in the hundred, rape, city, or borough. Of such seals but few are known to exist.

**ARCHITECTURAL SKETCHES, ITALY.**—Under this title it is proposed to publish, at a very low cost, a series of Sketches of Villas, Doorways, Gateways, &c., made on the spot, by Mr. T. C. Tinkler, Architect.\* Each part will contain four plates, and six parts will complete the work. The first part contains a

fountain in the Borghese Gardens; the Villa Medici, Rome; a page of Gateways; the Orti Farnesiani, Rome; and an ornament from S. Gregorio, Monte Celio, Rome. The entrance to the Farnese Gardens, partly the work of Vignola, was mentioned in Mr. Angell's interesting paper on the works of that master. (See p. 87, ante.) It is pointed out by some writers as the *capo-d'opera* of Vignola: we are profane enough to see nothing wonderful in it. Mr. Tinkler's work is inscribed to Earl de Grey.

**DESTRUCTION OF AN UNFINISHED LIGHTHOUSE.**—During the storm of 4th ult., the iron structure in course of erection at Bishop's Rock, off Scilly, was washed away. It was formed of cast-iron columns, braced and stayed with wrought-iron rods. The centre column was about 3 feet 6 in diameter, and the entrance to the light was by the interior of this column to the hopper, over which and under the gallery were the living room, store, &c. The height was to have been 120 feet, or 20 feet higher than the Eddystone lighthouse, and the whole was rapidly approaching completion. It is thought that some unseen fissure in the rock into which the columns were sunk had weakened the foundation.

**RESTORATION OF UPTON CHURCH, NEAR EATON.**—The dilapidated state of this long shut up but interesting and picturesque old Norman edifice was some time since brought fully under the notice of our readers; and we are glad to see, from a letter by Mr. E. Jesse, in the *Times*, that active measures are at length likely to be taken for its restoration. Her Majesty has liberally headed a subscription (now amounting to 350*l.*) with a donation of 50*l.* Nearly 1,000*l.* more, however, will be required (1,200*l.* for the whole, or 800*l.*, at least, for the body of the church), and we hope that some of our more able and liberal readers will now assist in rendering the means a little more adequate to the end in view than they yet appear to be.

**THE FINE ARTS AT SOUTHAMPTON.**—A public meeting was lately held to form an association for the promotion of art, with a studio for the use of members. The Mayor was in the chair, supported by some officers of the Ordnance department, with whom the idea originated, and the hall was crowded with an attentive audience.

**MONUMENT TO DUKE OF SUSSEX.**—A correspondent urges that a monument ought to be erected to the late Duke of Sussex, in memory of his many virtues and good feelings, and recommends as a site the open space on the grass between the "round pond" and the Palace in Kensington Gardens.

**PROPOSED LODGING-HOUSES IN CHELSEA.**—The rector of Upper Chelsea, the Rev. Richard Burgess, has arranged to build several lodging-houses in that parish, the rooms in which, with various conveniences, will be let at 1s. 6d. per week. The state of the London lodging-houses for the poor calls loudly for legislative enactment.

#### TENDERS

For three third-rate houses on the Lewisham-road, Deptford, for Mr. Barton:—

Crowhurst	£1,155 0
Street	1,145 0
Walker and Soper	1,120 0
Harnden	900 0
Goodwin	897 0
Symonds	845 0
Weller	882 0
Cooper and Bamley	845 10
Davis (accepted)	815 0

For the restoration of St. Michael's Church, Cambridge (recently damaged by fire). Mr. Scott, architect:—

Pock, Cambridge	£1,930
Bratwell, ditto	1,860
Bell, ditto	1,680
Rattee, ditto	1,580
Eddy and Chapman, St. Neot's	1,357
Atick and Quince, Cambridge (accepted)	1,317

For the erection of five carcasses in Woodfield-terrace, Westbourne-green. Mr. E. J. Kelly, architect:—

Brass and Son	£1,617
Haynes and Co.	1,660
Ryan	1,586
George May (accepted)	1,522

For alterations of Warehouse for Mr. Sam. Sugden, Aldersbury. Mr. Tiltott, architect; quantities supplied by Mr. W. Wright:—

Hayward and Nixon	£2,377
Grimsdell	3,100
Henry Burton	2,994
Brass and Son	2,999

\* Published at the author's residence, 49, Great Marlborough-street.











# The Builder.

No. CCCLXX.

SATURDAY, MARCH 9, 1850.

**O**UR old friend, of whom we spoke a fortnight ago\* (let us call him Senex, for shortness), has been kept in London ever since, in consequence, as he says, of one of two references which brought him to town being before a barrister instead of an architect. He is of too kindly a disposition to hate anything much, but *certainly* he has little love for barristers as a class, who, he maintains, in their professional capacity, uniformly insult an architect or a surveyor when they get him under cross-examination in the witness-box. Without going the whole way with our friend in this opinion, we must admit its correctness in the case of several individual members of the bar, who seem never to have arrived at a knowledge of the fact, that an architect is a gentleman. If any of them should chance to see this remark, we hope it may not be lost upon them.

"As to this present reference," said Senex, "we have had three times the number of meetings that were necessary, because the referee knows less than nothing of the matters in question. When I say less than nothing, I mean that the few notions he has upon it are all erroneous, so that they have to be unlearned. If disputants on questions involving knowledge of construction, prices, architectural jurisprudence, &c., would refer their disputes *before* going into court instead of afterwards, as they are usually led to do, they would not be forced to name a barrister for referee, and would moreover save costs."

Better, still, if they avoid both trial and reference, eh? Law is an expensive affair, even to the winner, and should be the last resource. The position of an arbitrator is a most honourable one: that architects do not oftener fill it is partly their own fault.

"I hear that the architect of the French Opera, Mons. Debret, is dead. Do you know anything of his history?"

"The March number of the *Revue des Beaux Arts*, *Tribune des Artistes*, published under the auspices of the *Société Libre des Beaux Arts*, in Paris, contains a brief notice of Mons. Debret, written by Mons. Petit, an architect. Debret was an artist of considerable talent, a favourite pupil of Percier and Fontaine, and a member of the French Institute, but, not advancing with the times, allowed younger men to pass him. His life was chequered: he had some triumphs and more sorrows. In 1820, when the removal of the opera was determined on, the honour of constructing the new theatre was conferred on Debret, and the result proved most satisfactory: so much so, that the commission to build the theatre des *Nouveautés*, was really forced upon him. Here, however, from some cause unexplained, he was so unsuccessful, that this theatre, now called the *Vaudeville*, has been altered twenty times without remedying all its defects. From this period his troubles commenced. Some years later he was displaced from the conduct of the works at the cathedral of St. Denis, and was succeeded by M. Viollet-

Leduc; and then his son, who had evinced much talent, and of whom he was very fond, died. In 1847 the Government determined on the restoration of the Opera House, and to the great disappointment of Debret, who naturally expected to have the conduct of the works, intrusted them to M. Rohault de Fleury, and as a consolation to Debret, appointed the latter a member of the Council of Civil Buildings, which added 240*l.* per annum to his income, but prevented him from undertaking any architectural work. After the revolution of February, however, he was struck off the list, on the plea of economy. He was then more than seventy, and this was the finishing blow. He left Paris, and at St. Cloud arranged for himself a modest residence, where he hoped yet to spend a few years in calm retirement,—but it was not to be. He died, his biographer says, on his work, like a Spartan on his shield!"

"Ah," sighed our friend, "we architects (I feel myself scarcely worthy of the noble title) have difficulties to contend against, but none greater than those which arise from the ignorance of the public. The jealous feeling which architects are said to evince is scarcely to be wondered at when it is remembered how much they suffer from the ignorant presumption of those on whom they must nevertheless depend. I met with some remarks on this head in an article on your journal in the *Globe* newspaper the other day, which seemed to me so true that I cut them out. Here they are:—'The masters of other arts,' says the writer, 'are at least able to command their materials, and realize their conceptions. A painter will scarcely fail to produce, himself, for mere lack of canvass and colours, or even a sculptor for want of a block of marble to warm into life. But every evidence of an architect's genius must for ever rest buried in his portfolio, if he cannot find liberal private or public patronage to supply him with space, stone, and funds. His talents must first find appreciation before he can show them, in any outward shape. Now, this requires a degree of discernment which, perhaps, is not brought to the inspection of architectural drawings by one person in ten thousand; yet the nine thousand nine hundred and ninety-nine are no whit less confident in their preferences than the one fit judge. Hence it happens that designs for buildings (where competition is admitted at all) are much more likely to be selected for some flagrant enormity, than any appropriate beauty. Our recipe for a rising architect, who would bear off the prize from his competitors, would be something of this sort:—Take your portico from Rome—take your tower, if you will, from Babel—never mind where you put them, or whether they fit, as regards any of the purposes, or any of the other dimensions, of the edifice,—only take care they are bold and big enough—sufficiently projected in light and shade to strike the duller eye. If your design has merit, the one *Enormity* will bribe recognition of it; if not, the same splendid disproportion will, in all likelihood, atone for its absence.'"

It ought to be the endeavour of architects to remove this ignorance, and to assist, to the extent of their ability, all who are labouring in that work. Who but an architect knows the difficulties under which his works are produced,—the numerous causes of results beyond his control, for which, nevertheless, he is blamed? Mr. Welby Pugin, in a pamphlet called "Some Remarks on Articles which have recently appeared in the *Rambler* relative to Ecclesiastical Architecture and Decoration,"

has a strong passage bearing on this, but, like most of us, thinks few have been so unfortunate in that respect as himself. "I have passed my life," he writes, "in thinking of fine things, studying fine things, designing fine things, and realizing very poor ones. I have never had the chance of producing a single fine ecclesiastical building, except my own church, where I am both paymaster and architect, but everything else, either for want of adequate funds or injudicious interference and control, or some other contingency, is more or less a failure. In the process of canonization there is always a devil's advocate, and I am satisfied that there is the same personage in the erection of every church, who contrives to mar the result. Sometimes he appears in the character of a furious committee-man, sometimes as a prejudiced ecclesiastic, sometimes in the form of a liberal benefactor, sometimes as a screw, but there he is in some character or other, thrusting in his claw and spoiling the job. St. George's (Lambeth) was spoiled by the very instructions laid down by the committee, that it was to hold 3,000 people on the floor, at a limited price; in consequence height, proportion, everything was sacrificed to meet these conditions. Nottingham was spoiled by the style being restricted to lancet—a period well suited to a Cistercian abbey in a secluded vale, but very unsuitable for the centre of a crowded town. If fine tracery windows admitting a due proportion of light had been introduced, it would have been a grand and satisfactory building; but this it was impossible to attain, and even the width of the lights was regulated, so there was nothing left but to make the best of it under the circumstances, and the result has been what might be expected: the church is too dark, and *I am blamed for it*. Kirkman was spoiled through several hundred pounds being reduced on the original estimate: to effect this, which was a great sum in proportion to the entire cost, the area of the church was contracted, the walls lowered, tower and spire reduced, the thickness of walls diminished, and stone arches omitted. When completed, the building was found to be too small for the congregation, its proportions stunted, and I believe the rev. author of this mistake has never ceased to deplore it from the time it was impossible to remedy it. Both the collegiate chapels I have erected have been spoiled for want of a sufficient sum expended in the first instance, on *thick walls and stout buttresses*, omissions which no subsequent amount of enrichment or expenditure can redeem."

"And yet," interposed Senex, "Pugin is thought a wonderfully lucky fellow by most architects, and they sigh for such opportunities as he has had, to show what they are made of."

But let us read a little further. "I could show," he continues, "were it not tedious, that it is everywhere the same. In our days a certain sum is named as the ultimatum of cost, without due consideration whether it is adequate for the description or dimensions of the church required, and this is the standard by which style, proportion, material, and detail is to be regulated. At first the unfortunate architect, not having the full fear of the tremendous figures impressed on his mind, ventures to indulge in an extensive plan, solid walls, and fine proportions; he thinks of glorious examples of ancient work, and rejoices in moulded arches, and stone jambs, and window reveals; he may even be audacious enough to imagine a clerestory, and fine lofty chancel,—but the day of reckoning comes, the quantities are taken out, and the estimate commences.

\* See p. 85, ante.



One by one he finds himself obliged to abandon the best details of his design: still he clings to proportions,—but even these must be sacrificed; off goes the clerestory, down go the walls; try it again; still 500*l.* too much. Brick arches plastered, and omit labels, will just do it; it comes out to the amount, a wreck to be sure, and anything but a worthy building; but it can be done for the stipulated sum, and that is the only point considered. This is no exaggerated picture. I can truly say that I have been compelled to commit absolute suicide with every building in which I have been engaged, and I have good proof that they are little better than ghosts of what they were designed; indeed, had I not been permitted by the providence of God to have raised the church of St. Augustine, I must have appeared as a man whose principles and works were strangely at variance."

It is an architect's province to be always striving for something better than he can get, and to conquer difficulties. A teacher has always to find fault; when he can be fully satisfied he is no longer wanted. Architecture is a harassing and responsible profession. If the circumstances under which architects' works are produced, and the thought, struggle, and anxiety they cost, were well understood and properly estimated by the public, the professors of our art would receive more consideration than is now usually accorded them.

#### PROMENADES IN PARIS.

In one's promenades through a great and ancient city, how much there is to see both novel and curious. On the one hand we have incessant change and activity, on the other the very rust of antiquity and inertness: side by side the new and the old, the modern and the ancient, are struggling for pre-eminence, for preference, for existence. Each has its admirers, its supporters. But it is particularly in the cities of the continent that we have the most interesting specimens of the buildings of ancient times, maintaining by their solidity of construction, as much as by the beauty and picturesque character of their decoration, their position against the encroachments of modern improvement and innovation. There the go-ahead principle of the Anglo-Saxon race has scarcely begun to make an impression, or rouse from their mediæval slumber the "paternally" governed populations. They start at length as the engineer's whistle resounds in their ears and the heavy *convoi* rushes swiftly past them, and seem to awake to a new existence and to new ideas at the wonders of steam and of electricity.

With these new visions spring up a thousand interests of progress and of fortune, and along with them the spirit of innovation and amelioration. It is curious to watch their effect, and to note with what rapidly new quarters and towns arise; how old places are changed, renovated, enlarged; and how the new, the modern world of progress in art, is holding out a hand of renovation and restoration to save the old from destruction or oblivion!

We have been struck with this fact more than once in our promenades about Paris. It is a great pleasure now and then, on an idle day, to set out in search of the curious, the ancient, and the picturesque, through some of those quarters of the town which abound in narrow streets and antiquated hotels. A few streets still remain untouched by the unrespecting hand of improvement. The oil lamp still swings across from house to house, glaring redly at night, only enough to make the darkness "more visible;" the rude pavement, with its dirty gutter running down the middle, seems never to have been touched for centuries; "bornes," or edge-stones, still line the sides, sole protection of the pedestrian; while the dirty-looking hotels, with their pompous portals and roomy court-yards, attract the attention of the stranger, not merely by the style of the architecture, but by the contrast of

light and neatness they most frequently present within to the narrow gloominess of the street.

As in London, the fashionable quarter of Paris has been moving westerly for several centuries. In the reigns of Henry IV. and Louis XIII. the Marais, the Place Royale, the Faubourg St. Antoine, the Isle Saint Louis, still contained within their limits the residences of the aristocracy. But a movement had already commenced towards the "westward," as the Tuilleries became more decidedly the abode of royalty; and in the following reign the superb Faubourg of St. Germain sprung up. If, therefore, you would wish to form an idea of the grandeur of former times, you can trace it in the French capital with remarkable distinctness. Solidity of construction has guaranteed from the fickleness of change the works of former days, and the slowness to admit of innovations, and the facility to accommodate themselves to circumstances, which characterize the French, account, perhaps, in some measure, for the existence of whole quarters, ill adapted, one would think, to modern ideas and habits.

But the mental and material revolution is fast producing its fruits now on every side. Not content with rearing new and magnificent quarters to the actual sovereign of France—the middle class,—the spirit of change now threatens older districts. In the splendid hotels of the ancient aristocracy—theatres of so many intrigues, conspiracies, and crimes—inexhaustible sources for the novelist and romance writer—industry at the present day has her throne. From the vault to the roof they are filled with the productions of commerce, of manufactures, of art. Under the painted and gilded ceilings are displayed the wares of the tradesman. The *boudoir* is the counting-house of the honest merchant: we might name many whose destination has thus been changed by the fickleness of time. Few, however, would present any interest to an English reader; and of these, the Hotel Lambert, on the Island of St. Louis; the Hotel St. Aignan, Rue St. Avoys; and the Hotel Sully, in the Rue St. Antoine, are among the most conspicuous for their historical recollections, as for their superiority in point of architectural beauty.

The terrible Faubourg St. Antoine—more terrible in imagination than in reality—once the residence of the proudest aristocracy, is now the residence of the industrious democracy. The whole quarter, from the Boulevard du Temple to the river, and from the Hotel de Ville to the Bastille, the scene of some of the worst events of revolution, is of the highest interest. We may traverse it in any direction, and find abundant materials for excitement and curiosity. The abode of the great mass of the working people of this metropolis is not, like that in most great towns, paltry in character, wretched in appearance, and devoid of interest; on the contrary, despite its many narrow streets, and uninviting aspect, here and there, it is generally picturesque and highly attractive to the curious observer.

Inhabited as it is principally by the working class, it became naturally the stronghold of the extreme party, and some damage was done during the conflict. Few houses in the Rue St. Antoine escaped. In spite of the reparations the damage is still to be traced; the fronts of the houses, particularly near the corners of streets, being grazed and peppered by shot. One house was battered down on the Place of the Bastille, at the corner of the Rue de la Roquette, and others received their quantum of cannon shot. At this moment some houses are in course of demolition on the Quai Saint-Paul, in order to widen and raise the pavement, and one of them standing more in advance than the others, received, in June, 1848, no less than twenty-three cannon shots, besides several discharges *à mitraille*!

This quay is one of many improvements going on in the Quarter, and has been urged forward in order to render the approach to the Lyons Railway as easy, at an early period, as possible. The quays of Paris are unrivalled, and there is little more to be done to make them uniform in width and grandeur. Amongst the changes they have necessitated, has been the demolition of the house formerly inhabited by Abelard and Heloise on the Quay Napoleon, No. 9, at the corner of the Rue des Chantres.

The new building, like the majority of those constructed of late years, is a great ornament to the quarter. It has two entrances, over each of which are medallions of the two lovers, and between the doors is a slab of white marble, with an inscription in letters of gold, "*Ancienne habitation d' Heloise et d' Abeillard, 1118; reconstruite en 1849.*"

Another encroachment of the spirit of progress here has led to a rectification of an error respecting the house in which Molière was born. Among the houses to be demolished, on account of the enlargement or rather the throwing into one market of all the markets congregated between the Halle au Blé and the Rue St. Denis, was this one which all the friends of literature were about to regret because of its historical *souvenirs*. It was M. Lenoir, conservator of French monuments, who first noticed this house, and on the 13th Brumaire, An VIII. (4th November, 1799) put up an inscription on the front, "*Ici Molière est né en 1620.*" The edifice, No. 5, Rue de la Tonnelierie, has been since almost rebuilt, and decorated with a bust of the celebrated writer, with the words, "*C'est dans cette maison qu'est né, en 1620, Baptiste Poquelin de Molière.*" Far from deploring the loss of this pretended monument, it is perhaps rather desirable that it should be destroyed, inasmuch as it consecrates an error. In fact, the Act of Baptism of Molière, found among the registers of the parish of Saint-Eustache, as also the archives of the hospitals, prove that the great man was born on Saturday, 15th January, 1622, at the corner of the Rue des Vieilles-Etupes and the Rue St. Honoré, near the Croix du Trahoir.

The Rue de la Tonnelierie, now about to be demolished, is one of the curiosities of Paris. In the twelfth century it was a road containing here and there a few miserable dwellings, occupied by Jews. It was closed in 1202, and obtained its name from the number of coopers who lived in it. It was afterwards called Rue de la Toilleries, in 1547; but there are documents of the seventeenth century in which it is styled "*Grands Piliers de la Halle*,"—no doubt from the circumstance of an arcade running the whole length of it, supported on massive square pillars. Not far from this spot, by-the-by, is the Rue de la Ferronnerie, in which Henry the Fourth was assassinated, south of the Marché des Innocents. It was then a very narrow street; and by stepping on one of the "bornes," Ravallac was able to reach and strike the great man who wished "that every passant should have a fowl in the pot for dinner on Sundays."

Strolling from the markets to the quai, we arrive at the Hotel de Ville, around which a number of houses are being taken down, in order completely to isolate it. And a little to the west is a mass of ancient building, intersected by some of the narrowest streets in the town, a considerable portion of which is about to be removed, not for mere purposes of health, although that is one consideration, but also while forming an open space, to build a caserne for the protection of the Hotel de Ville, which is embarrassed by the number of troops lodged within its precincts.

From thence, we cross the river to observe the reparations going on in the tower in which Marie Antoinette was confined at the Conciergerie. The almost complete restoration of Notre Dame attracts our attention. The ground in front has been lowered, and instead of descending into the cathedral, we now have to ascend three or four steps into it—in early times there were eleven steps—an improvement of no small importance after all. The towers and the beautiful front are almost entirely renovated, and in approaching them, we are now infinitely more struck with their grandeur and beauty; the richly ornamented portals look higher and nobler since the levelling of the ground. To the south of the cathedral, on the spot where the Archbishop's palace formerly stood, has been built a beautiful sacristy, according, in Gothic character, with the edifice; and in front of it is a noble quay leading to the public promenade, once the Archbishop's garden, and at present covered with temporary barracks for soldiers. At no time has this interesting building been more complete, or presented an appearance more thoroughly in accordance with its re-



ligious character. It is the most curious, as it is the most ancient Gothic edifice in Paris.

Gratified by our visit, we retrace our steps to the Palais de Justice, to examine its incomparably elegant Sainte-Chapelle. It is a veritable *chef-d'œuvre* of Gothic art—admiration of the artists of all countries. For years it has been partially concealed by scaffolding, wooden sheds, and houses in a state of demolition, so that it was almost impossible to visit it or get a view of it. Each year considerable sums have been devoted to its restoration, and a hope has been entertained that during the alterations and enlargements which have been carried on at the Palais de Justice means would be adopted to isolate this beautiful chapel, and disengage it entirely from the miserable buildings which disfigured it; or at any rate, that no new construction would be permitted near it.

One would have supposed that common sense and artistic taste would have suggested a respect for the elegant building which it is pretended to restore; but this is not the case. Far from leaving it exposed to public admiration, the space around it is being gradually inclosed by buildings attached to the Palais de Justice; and, what is worse, these plain modern constructions, well enough in themselves, are actually brought in contact with the chapel itself; disfiguring it by the contrast of their heaviness with its elegance and lightness. It is really too bad. For 600 years the Sainte-Chapelle has existed almost untouched; and now, when pretending to restore it, it is about to be buried amidst a mass of heavy masonry.

Victor Hugo, as far back as 1832, in his *Notre Dame de Paris*, raised a cry of complaint at the vandalisms committed by unworthy architects upon the remains of the middle ages, and not without success. There has been a party, and we might say there is a party, who carry their democratic principles so far, as to think that the destruction of everything that can recall to mind the slavery of feudalism is a worthy and essential object of pursuit; and a society still exists, rich and prosperous, founded upon such principles, among whose members are many individuals, drawn into it no doubt from a love of gain, whom we should be disposed to imagine would be the last to be connected with such a body: a better taste is prevailing, however. *Notre Dame* is restored; the Sainte Chapelle, with its beautiful stained-glass windows, is renovated; St. Germain l'Auxerrois is not taken down, but repaired; the tower of St. Jacques de la Boucherie still remains standing, and is even threatened with restoration also; the admirable Chapel of Vincennes has been spared; the ancient Royal Abbey of St. Germain-des-Prés, built in 558, and magnificent in interior decoration, has escaped everything but reparation. In short, the appeals of the learned and the influence of religion have brought back a respect for the ancient, and where no absolute necessity existed for destruction, for the accommodation of a railway terminus, or the construction of a new street, the relics of former taste and skill have been renovated and protected.

Having gratified our curiosity on the Ile de la Cité, and excited at the same time a taste for Gothic restorations, we determined to cross the river to visit the church of St. Germain. On our way we traversed the Place de Grève, formerly the chosen spot for public executions, and stopped to admire for a while a beautiful little turret which stands at the upper corner of a house on the north-west side, and is almost the only remains of the style of building which characterized the "Place" in olden time. We were more than half inclined, as we admired its light and airy appearance beside the plain and formal façades of modern houses, to regret the loss of this architectural ornament of other days. It must soon disappear, with the picturesque edifices of which it formed so essential a part, to make room for an enlargement of the Place, in unison with the extent and grandeur of the modernized Hotel de Ville.

In passing round this latter building, we came among a mass of houses in course of demolition, which we had the curiosity to stop and examine minutely. They were ancient, and we were disposed to admire and to bemoan. But the aspect of their interior arrangements, now exposed to view, the lowliness of the rooms, the wretched, uncouth, and irregular character

of the oaken staircases, the miserable narrow entrances and low passages, ill-ventilated, ill-arranged, badly lighted, inconvenient, damped the ardour of admiration which the thought of airy-looking turrets and picturesque gable-ends, and all the bold, intricate, yet rich and delicate ornamentations of the Gothic, the Norman, or the Byzantine, for an hour or two had created in our mind.

We passed on to St. Gervais, to view the paintings being executed in one of the chapels. It is that in which is the baptismal font. The pillars and the windows are covered with arabesques and ornaments, most delicately cut; the ceiling is rich and florid in sculpture; and the key-stone, as well as the mouldings in the nave of the church, are gilded. Painted glass windows have replaced those by Pinaigrier,—of which remained but little,—and for colour and drawing surpass the works of the ancients. These, with the architectural wonder of the little chapel of the Virgin, apparently suspended from the ceiling, make this church one of the most attractive. It has at the same time a fine front, but which, like that of St. Eustache, is in no way suited to the style of the rest of the building.

From St. Gervais we again crossed the river by the Pont d'Arcole, passed the spot where the house of Abelard and Heloise once stood, viewed again the imposing front of Notre Dame, and then traversing the new bridge and the new quays, dived into the midst of that antiquated and irregular mass of streets and buildings which mask the sides of the hill, crowned by the Pantheon. This is the Mount St. Geneviève, celebrated for its beautiful church, and for a convent once existing there, of which only a tower remains, remnant of antiquity peculiarly precious to the connoisseur.

We were in search of a modern curiosity, but the ancient prevailed for a moment in our mind over the new, and we were tempted to enter St. Etienne du Mont, to view its beautiful screen or gallery—for it has the character of both,—and the tomb of the Patroness Saint of Paris. The tomb was black as age and the smoke of farthing lights, ever burning from century to century, could make it. We passed on, praising the religious zeal, and pitying the superstition, which has grown, in the shadow of time, out of the traditions of savagery and ignorance, and proceeded to the new Library of Saint Geneviève. This has been built to the north of the Pantheon, at the back of an old edifice temporarily occupied by the library, and is now almost finished. As the scaffolding is removed, we can at present judge a little of its effect. It is a curiosity of its kind, being quite original in design, and not to be compared to any other building that we are acquainted with. The façade is simple—we would say plain—having little ornament and less variety, and is relieved almost solely by the multitude of names of celebrated authors, of all times and countries, which are cut in tablets let into the walls on every side, and nearly covering them. Among these figure, in golden array, our Shakespeares, and Goldsmiths, and Newtons,—men who belong to France for the simple reason that they belong to their genius to humanity. Above and below these tablets are festoons of flowers, cut elegantly in the stonework, running the whole length of the edifice: beyond this nothing can exceed the severe plainness and originality of the building.

We might find fault—who cannot? who has not? But so long as there is no glaring impropriety of style, so long as proportion is not absolutely outraged, so long as common sense is not wounded by any extravagance or ridiculous confusion, we feel that we ought to be pleased at the effort. The edifice is peculiar, is original—and we like it for that. It will not please everybody, how can it?—when one is enamoured with the Gothic, another with the Grecian, a third with the Roman or Italian, and a fourth, perhaps, with the Arabian, the Egyptian, the Hindoo, or the Chinese! There are beauties in each: let each have perfect liberty of choice; but having the liberty to choose, let him not find fault tyrannically with the choice, the whims, or loves of others. We would rather see a little more originality than that interminable system of copying, which, by enforcing by strict rule, and limiting within certain bounds, what is boundless and

ever varying, drags genius always in the mire of imitation. The ardour of the scholar should not be damped or cramped by being made to regard the works of former men as complete, as efforts beyond his reach, subjects for his admiration and worship; but he should be taught to regard them as stepping-stones to endless expansion of mind. Literature, the arts, the sciences, politics, morality, ay and religion, have suffered by this superstitious and selfish limitation of the natural liberty of the human mind. It is time to be tolerant in all things, in order to be more perfect, more exact, and more capable.

Before terminating our present promenade, let us remark, that a commission has just been formed to examine into the complaint respecting the hiding of the Sainte Chapelle behind a mass of stone edifices. As more room is required for the necessary additions to the Palais de Justice, and no other space presents itself, it is probable that a compromise will be entered into, and that, as suggested, some of the new buildings will not be carried higher than one story.

#### ROYAL INSTITUTE OF ARCHITECTS.

THE ordinary meeting of the 4th inst. was numerously attended, to listen to a dissertation by the Rev. Richard Burgess, on the Mole of Hadrian, now the Castel S. Angelo, at Rome, one of a valuable and interesting series on the architectural remains of the Eternal City, which have been laid before the Institute by that gentleman. Before the paper was read, Mons. Guy (architecte de la ville) of Caen, and Herr Heideloff, of Nuremberg, were elected honorary and corresponding members; and Mr. Henry Clutton, previously an associate, was elected a fellow.

The honorary secretary announced the death of Mons. Debret, of Paris, an honorary member of the Institute, and of whom a brief notice will be found in the present number of our journal.

Mr. Tite exhibited a memorandum of an account for business done by the late Sir John Soane for Mr. Beckford, of Fonthill, with the receipt annexed. The whole is in the handwriting of Sir John, and a copy will be found in another part of our journal.

Mr. Tite further said, he had been requested by some of the younger members of the profession to make an inquiry concerning the building for the '51 Exposition. It was very satisfactory to find Mr. Donaldson, their honorary secretary, upon the committee for arranging matters connected with that building. Mr. Cockerell was also upon that Committee, and an impression prevailed that let who would forward suggestions, Messrs. Donaldson and Cockerell were to carry out the building.

Mr. Donaldson said he was not sure, that he ought to reply there; but he would venture to say that no course in respect of the suggestions for the plan that would be received had been determined on, and that all ideas found valuable would be fully acknowledged. It was to be a temporary building only.

The Chairman (Mr. Smirke) was not certain as to the wisdom of offering no pecuniary reward for designs; he thought the overflowings of the flesh pots might have fallen for the advantage of architects.

Mr. Burgess then proceeded to read the paper of the evening, which was characterized by the humour, intelligence, and learning of the Rev. gentleman's other contributions. Several of these will be found in other volumes of THE BUILDER, and we shall probably add to them the present essay in full. The paper was very fully illustrated, including some excellent sketches by Mr. Gruner, of the more modern decorations of the castle of St. Angelo.

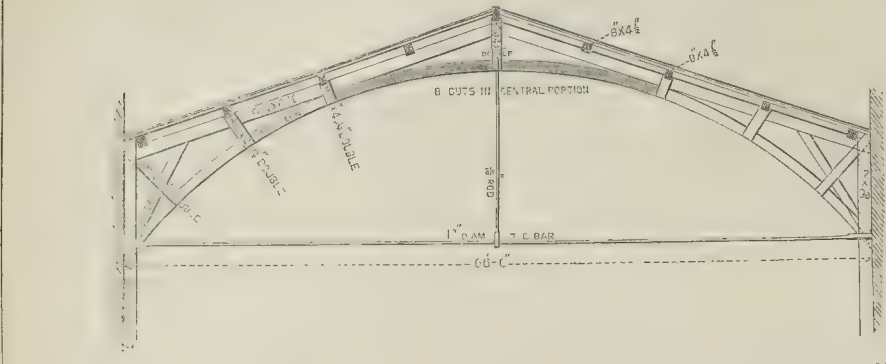
In the course of an interesting conversation which followed, the honorary secretary said he had urged in letters to the secretary of the French Academy and others, the importance of obtaining an investigation of the present state of the monument and its decorations, but without good result at present.

MICHELANGELO'S "LAST JUDGMENT" is said to be on its way to London from Leghorn, in a steamer for Liverpool, whence it is to be forwarded under Government seals without being opened by the Customs' authorities.



## ROOF OVER MERCHANDISE SHED OF THE ROUEN RAILWAY, PARIS.

[SINCE REPLACED BY A WROUGHT-IRON ROOF.]—M. CLAPERON, ENGINEER.

ROOF OVER MERCHANDISE SHED,  
ROUEN RAILWAY.

THIS roof was erected to cover the portion of the station in the Rue S. Lazare, Paris, devoted to the light goods traffic of the Rouen Railway: it was made independent of the walls, because the St. Germain Company, to whom the whole station belonged, even then contemplated the covering the whole station with a wrought-iron roof,—since done.

The details are sufficiently shown on the drawing; but we may remark, that the plan adopted of running cuts down the centre part of the arched beam is a clumsy substitute for the mode of building up such beams of bent plank. The beam is not so strong; and the whole part of it takes a very irregular curvature. The clipping pieces of the arch and of the principal rafters looked heavy; perhaps stirrups and filling in pieces would have been preferable. The pitch of this roof was too low; the slates blew off very much. The principals were 16 feet apart.

MEDIEVAL BRICK BUILDINGS IN  
GERMANY.

THE earliest buildings in which brick appears as the prevailing material date their commencement in the latter part of the twelfth century. But it is not till the end of the thirteenth century that we find any examples of importance, and the style was fully developed during the fourteenth and down to the middle of the fifteenth century.

The earliest examples of this style are, as might be expected, ecclesiastical structures, and the prevailing character of these is simplicity and massiveness. The form of the plan is at first the cross, the choir having a polygonal apse with the aisle continued round it, and sometimes also small chapels spreading beyond; the floor of the choir is considerably raised, and a crypt formed under it; but the transepts were sometimes omitted, retaining the same arrangement of the choir. The best examples of this early style are to be found in the churches of Rive, Odensee, Ringstätt, Roskilde, on Zealand and the adjoining islands.

In these examples we find the semi-arch, small windows, and many other features of the Romanesque buildings, with which they are nearly coeval, but probably a little later. But by far the greater number of existing examples belong to a later period, as already mentioned, and these exhibit more peculiar features. The plan now presents nave and aisles only; the choir still terminates polygonally, and the aisle is sometimes continued round it; but frequently the aisles are also closed at the east end by a small apse, and in this case the choir is continued eastward beyond the aisles: the choir is always marked by being raised a few steps. The space between the wide projecting buttresses is sometimes occupied by small chapels, both round the east end and at the sides of the aisles. The towers are, I think, invariably placed at the west end only, and

there is most commonly only one, which is embedded in the body of the church, so that the west façade is unbroken, and the tower only shows itself above the roof: in this arrangement buttresses would not have added to the apparent stability. The aisles are of equal height with the nave, or at least the vaulting springs from the same line. The roof is generally in one span over nave and aisles, rendering it a very important feature externally from its necessarily great height: the usual covering is copper. The windows are of narrow proportions, and without transoms; the tracery, where not of stone, is of a very simple and even rude character, though there are exceptions. The doorways are generally small, but deeply recessed, with rich mouldings; porches are not common, but I am able to exhibit one example from the Dom Lübeck. The form of the arches is generally about the equilateral, the pier arches more depressed. The piers are mostly of simple form, as circular or octagonal, with four attached vaulting shafts; but there are examples of a more elaborate composition. The vaulting is generally the simplest form of cross vault, without any wall or ridge ribs: in each compartment, between the transverse ribs, the vault rises domically, so that there can hardly be said to be any ridge at all, as the vertical section through the centre of the vaulting would present somewhat the appearance of a series of irregular-shaped domes; and, probably with a view to lighten the construction, the centre is left as an open eye, round which the moulding of the ribs is continued. In some instances the brickwork of the interior has been simply pointed, and left without any plastering or colouring except in the vaulting; this treatment, though it produces rather a gloomy effect, is perhaps preferable to the indiscriminate whitewash.

Of the exterior, the most striking features are the towers, though usually single, and placed at the centre of the west front. They are of large dimensions, both on plan and in elevation, but of exceedingly simple outline, without buttresses, and with scarcely any ornament but the bands of sunk tracery which divide the different stories. The openings are small, too much so apparently to let out the sound of the bells; some of the smaller of these are therefore occasionally found on the outside, in a kind of balcony. The towers are most commonly square, up to the commencement of the spire, which is octagonal, and constructed of wood covered with copper or lead: the transition is made by gables on the four sides of the tower, but there are some examples where the upper part of the tower itself is octagonal.

The spire is generally more than half the whole height, without any attempt at ornament, and terminates in a simple vane. The form is very taper, and is elegant from its simplicity,—essentially different from the heavy spires of the Romanesque churches on the Rhine, which in construction they resemble.

As the roof is generally continuous over both the nave and choir, the division is marked externally by a kind of lantern, with a small spire, placed on the ridge of the roof; and

this is called a roof-rider, a term very expressive in its position, though the saddle is none of the easiest.

The small town of Tangermünde, on the Elbe, contains some very good examples—the Conventual Church and St. Stephen's: in the latter much of the moulded work is in stone. A short distance from this town there is a very interesting example of the early period of the brick style, in the church at Jerichow (before 1200), in which the semi-circular arch is used throughout; there is also a crypt; the cloisters which still remain show this to have been a conventual church. Not far from Tangermünde, in another direction, is situated the ancient capital of the Mark Brandenburg, Stenthal, where there are several fine churches of the brick style (the Dom, St. Mary's, St. James's, and St. Peter's), all on a very large scale. At Brandenburg the Dom affords another example of the earlier period, at least in part. The church of St. Katharine (1401), partakes externally rather of the civil than ecclesiastical character; the façade has a stepped gable. I will only mention further the church of St. Nicolas, at Stralsund (begun 1311), and that of St. Mary, at Stargard, in Pomerania, both of which are stated to be particularly fine examples of the style.

We now turn to the civil architecture of the brick style, examples of which do not occur till about the latter part of the fourteenth century; and they are generally of a much more elaborate character, with greater subdivision of parts, and more profuse decoration. Among these buildings the town halls, or senate houses, form an important class, but they will hardly admit of any general description; further, the gate towers and other fortifications are very worthy of notice; and, lastly the private houses, though these do not offer any very great variety.

The treatment of the ornamental parts in this style is peculiar, and well adapted to the material in which they are executed. There is one feature in particular which deserves attention; I mean the introduction of a white plastered ground to relieve the forms of tracery, &c., put over it. This relief by colour is rendered necessary by the dark hue of the material, owing to which the shadow of small projections would not give sufficient relief.

In the early examples of the brick style, the more elaborate parts, including the tracery of the windows and other moulded work, were executed in stone. Horizontal bands of stone were also occasionally introduced, and they have a good effect in tying together the different parts of the composition, besides their value in a constructive point of view. But in the later examples from the end of the fourteenth century, stone is entirely dispensed with, and we find even such parts as crockets and finials executed in brick. The use of dark brown or black glazed bricks was also common during the later period. The character of the mouldings varies of course somewhat in the different periods, being simpler in the earlier, and more elaborately subdivided in the later: delicacy of profile can hardly be expected from



the nature of the material. Moulded bricks were also used to make up general forms, such as circular piers, the inner side of circular turrets, &c.

There are a few points in the construction of the buildings we have been examining which ought not to be passed over. There is usually a granite plinth carried all round the churches, and the towers are faced with the same several feet up. The absence of buttresses to the towers rendered it necessary to increase the thickness of the walls, which we find is very considerable; notwithstanding which they mostly incline from the upright, and it is remarkable that this occurs most frequently towards the S.W. While speaking of the mortar-joints, I should mention that they are invariably very wide (from  $\frac{1}{2}$  in. to  $\frac{3}{4}$  in. or even more)—the mortar itself is extremely hard, and the lime used was, for the district we are considering, principally supplied from Segeberg, in Holstein.

The construction of the vaulting, I think, claims particular attention. In the first place, a light material was prepared in bricks, moulded of a wedge form. The ribs seem to have been first constructed, independently, as a skeleton, and between them the spandrels were filled in with the light bricks, apparently without the use of centring, as each spandril is considerably arched up to enable it to support its own or any superincumbent weight; thus the vaulting rests entirely on the ribs, which are not tailed into it. It is a single brick in thickness, about 6 in., and is backed up only a very short distance above the springing, so that the form is very distinctly seen on the upper surface, where it presents a very remarkable appearance. The bond used throughout is the Flemish, or cross-bond, as it is there called: the arches are always built in half-brick rings.

CHARLES FOWLER, Jun.

#### DISTRICT SURVEYORS' FEES.

A DECISION has been just now obtained on a question concerning district surveyors' fees, which ought to be generally made known. For reasons which some will, we hope, appreciate, we avoid naming the district, and give simply the facts.

Mr. Gerry, builder, had done certain works at a villa residence (first-rate) belonging to Mr. Mordan, namely,—added a bow window to the drawing-room, a smaller bow to the library, and a small portico at the side of the house; a conservatory adjoining and communicating with the house was brought forward 2 feet; and a detached stable was raised 3 feet, and a small chaise-house formed adjoining it.

The works were all executed at the same time and under one notice.

The district surveyor sent the following list of charges:—

June, 1849.	
Fees of front bow addition, rear bow addition, and also of portico addition on west flank of dwelling-house as aforesaid, at 1 <i>l</i> . 15 <i>s</i> . each respectively	£5 5 0
Fee of detached building (chaise-house)	1 15 0
Fee of addition and alteration of detached stable building of second class and fourth rate	0 10 0
Fee of ditto of conservatory of ditto	0 10 0
	£8 0 0

Payment was refused, and the district surveyor applied to the referees to confirm the correctness of the account. The referees awarded as follows:—

"First.—With regard to the first item of the said account, namely, the sum of 5*l*. 5*s*., for additions to the said dwelling-house,—that inasmuch as the works in respect of which the said sum is claimed were all executed at the same time, upon the same building, such works form only one addition to or alteration of such building, and that one fee only is payable to the said district surveyor in respect thereof,—namely, the sum of 1*l*. 15*s*., being the fee provided by schedule L of the said Act first herein mentioned, for an alteration made to a building of the first rate.

Secondly.—With regard to the second item of the said account, namely, the sum of 1*l*. 15*s*., for

\* These fees are described by the surveyor as "charged in accordance with decision of Commissioners of Works in re Whittell and Badger, D.S.," at which we must take an opportunity to look.

the building of 'a detached building containing a chaise-house,' &c.,—that such chaise-house is not, and is not to be rated as, a distinct building separately from the stable with which it is connected, but forms one building with such stable, and that the fee payable to the said district surveyor for the supervision of the erection of such chaise-house is the sum of 10*s*., and no more, being the fee provided by schedule L of the said Act first herein mentioned, for an addition or alteration made to a building of the fourth rate, and not containing more than two stories.

Thirdly.—With regard to the third item of the said account, namely, the sum of 10*s*., for 'an addition or alteration of a detached stable building,'—that inasmuch as the works in respect of which such fee has been claimed were executed upon the said stable building at the same time that the said chaise-house was added thereto, the whole forming one detached building, no separate fee is payable to the said district surveyor in respect of the raising of the said detached building.

Fourthly.—With regard to the fourth item of the said account, namely, the sum of 10*s*., for an addition to or alteration of the said conservatory,—that inasmuch as such conservatory is an appendage to the said dwelling-house, and inasmuch as the works upon the said conservatory, in respect of which such fee has been claimed, were executed at the same time as the aforesaid addition to or alteration of the said dwelling-house, such works formed part of the said addition or alteration, and no separate fee is payable to the said district surveyor in respect thereof."

The costs (2*l*. 9*s*.) to be paid by the district surveyor.

This award was dated Dec. 17, 1849. The registrar, considering it objectionable in point of law, referred it to the Commissioners of Works for their decision, and the commissioners, a few days ago, directed him to affix the seal.

#### SOANE'S CHARGES.

##### PROFESSIONAL REMUNERATION.

THE following is a copy of the bill delivered by Sir John (then Mr.) Soane to Mr. Beckford, exhibited by Mr. Tite at the Institute on Monday evening last:—

"William Beckford, Esq.,	To John Soane.
1787.	
April.—A journey to Fonthill (time and expenses).....	£8 8 0
Taking plans of the situation for the intended gallery, making fair drawings of a design for forming the gallery, and introducing the prints of the Vatican .....	12 12 0
Making a fair drawing of a design for finishing the niche heads in the tapestry-room; making fair drawings of the chimney-pieces for the tapestry-room and S. E. parlour ..	3 3 0
Dec. 5.—A journey to Fonthill (time and expenses).....	8 8 0
1788.	
Jan.—Making two designs for state beds, and fair drawings of the same ..	10 10 0
Wicket (plasterer) .....	£36 14 4
Banks (sculptor).....	93 3 6
Nelson (mason).....	135 5 4
	£265 3 2
Commission for making the working drawings for the above, attending the execution, and measuring the work, &c., 5 per cent. on 265 <i>l</i> . .....	13 5 0
	£56 6 0
Paid Thomas Banks, as per bill. ....	93 3 6
Paid James Nelson, ditto. ....	135 5 4
	£284 14 10

December 2nd, 1788.

"Received of William Beckford, Esq., by the hands of Thomas Wildman, Esq., two hundred and eighty-four pounds fourteen shillings and tenpence, in full, for surveying and money paid for chimney-pieces, as per bill delivered: I say in full of all demands.

£284 14 10.

(Signed) JOHN SOANE."

It will be observed that Soane charges in this bill for his time occupied in travelling, a sum for each design, and then 5 per cent. commission on the cost of the work,—an indulgence not now usually accorded to architects. Another point noticeable is his having been employed to design the state-beds. This item, when read, caused a laugh, showing (and much it is to be regretted) that architects are

now seldom so employed. A laugh would be more legitimately raised against those who do not employ a properly qualified person to design their furniture, to accord with the rooms in which it is to stand; and who so fit as he who designed the rooms?

#### NOTES IN THE PROVINCES.

A NEW banking house for the Northamptonshire Banking Company is now erecting at Northampton. Mr. E. F. Law is the architect. A new ragged school is also erecting at Northampton under the same architect. The funds for the erection of this school have been raised as a thank-offering for deliverance from the late grievous sickness, and is being erected in the locality where the disease made the most fearful ravages.—The trade of Portsmouth and Portsea, says the *Hampshire Independent*, are holding consultations for the purpose of inducing their gas company to submit to the reduction of a solitary sixpence upon the not unreasonable charge of 6*s*. 6*d*. per thousand; and it remains to be seen whether the tradesmen of Newport will remain long dormant, under the infliction of ten shillings for an inferior article, whilst the minor town of Cowes can be supplied at a far less amount.—The Plymouth council having called for tenders for cast-iron piping for water supply, upwards of 26 were sent in, varying in price from 6*l*. to 5*l*. per ton. The tender of the Colebrook Dale Company was accepted at 5*l*. 3*s*. 6*d*. per ton.

—At a crowded meeting of Baptists in a hayloft at Haverfordwest, on Tuesday week, the beams of the flooring gave way, and precipitated the congregation amongst a collection of cows below. The reverend pastor alighted safely on a cow's back, with a boy on his own, but some of his flock met with rather serious falls; so that there seems to be some sense, after all, in the 'moral' of 'the old jackdaws' experienced and sagacious advice to 'the young jackdaws,' against 'ever getting up upon the tops of the cows,'—incongruous elevations like these being apt to end in dirty falls, even in the purest and greenest of pastures.—A water-works company, with a capital of 5,000*l*., in 500 shares of 10*l*. each, is to be established at Pont-y-pool. The advice of Mr. W. Llewellyn, C.E., points to the wells at Gellypstiel for the requisite supply of pure water, and plans have been prepared.—The Kidderminster Corn Exchange Committee have reported to the council their recommendation to advertise for tenders for the erection of the building forthwith, and also for the loan of 12,000*l*., at 4 per cent., for that purpose, if requisite.—Upwards of 8,000*l*. have been already subscribed for the new public hall at Bradford.—The Whittle Dean Water Company, says the *Gateshead Observer*, have been increasing their charges even 25 per cent., but whether the advance be a judicious one is very questionable.—The inhabitants of Carlisle have, in a very few days, subscribed nearly 600*l*. towards the purchase of a building for the use of their Mechanics' Institute.—The Ordnance Survey of Mid Lothian is to be the next survey undertaken by the corps of Sappers and Miners, who have already commenced at Edinburgh with the previous triangulation of that city, the survey of which is to be laid down on a scale of 5 feet to a mile, the other towns mostly on one of 6 inches to a mile. If we understand rightly, this has been already done by a private speculator.

THE VIADUCT OF THE GREAT NORTHERN RAILWAY at Peterborough, across the river Nene, comprises a bridge of cast-iron, formed by three arches, with a span of 66 feet each, resting on two supports, and sustained by twenty-four fluted pillars fixed by atmospheric pressure. At the north end of the bridge four brick arches will intervene between it and the embankment leading to the station at Sexton Barns; three arches of the same dimensions in the meadow will divide the bridge from the passage over the two railways running at a lower level—the London and North-Western and the Syston and Peterborough lines, which will be supported by twelve columns; and between this passage and the embankment to the south will be erected a series of nine arches, similar to those on the north.



THE ABBEY GATEWAY, TEWKESBURY.



THE ABBEY GATEWAY, TEWKESBURY.

The abbey gateway at Tewkesbury, represented by the annexed engraving, is supposed to have been erected by Abbot Parker, at the beginning of the fifteenth century. It is the property of Mr. John Martin, the present member for Tewkesbury, by whom it has been restored, under the direction of Mr. Medland, architect.

It was in a ruinous and dilapidated state, entirely roofless, and the walls covered with a luxuriant plantation. A considerable portion of the walls was taken down and rebuilt—the stones being replaced precisely in their former position, and the whole of the stonework thoroughly repaired.

The building has been roofed with wrought timbers in panels, with carved and moulded brackets, supported by stone corbels with carved heads, and shields bearing appropriate devices.

The roof is covered with lead, forming an area, from which a commanding view of the beautiful scenery of the surrounding country can be obtained.

Some further restorations are still in contemplation. The total cost, to the present period, is about 440*l.*, which has been liberally expended by Mr. Martin, with the view of preserving this interesting relic. Messrs. Call and Collins, of Tewkesbury, were the builders.

**SCULPTURE FOR THE NEW HOUSE OF LORDS.**—According to the *Art-Journal*, Gibson, the sculptor, is now occupied in making a design, at Rome, for a national monument for the House of Lords, which affords high promise of beauty. It consists of the statue of her Majesty, supported by two figures—one representing Wisdom, the other Victory. On the pedestal are three bas-reliefs, representing Commerce, Science, and Agriculture, the triple root of Britannia's grandeur.

**LOW PRICE OF TIMBER.**—At a sale of timber held in Worcester during the past week, twenty-three large elm trees, and sixty-eight prime hearty oak trees, were sold by auction; the former realizing at from 8*d.* to 11*d.* per cube foot, and the latter from 1*s.* 3*d.* to 2*s.* 1*d.*

CLEAR SPACE FOR ST. PAUL'S.

THERE seems to be every reason to believe that one of *THE BUILDER'S* little paper pellets, furthered through the great guns of the newspaper press, and re-aimed by a steady and determined hand, is now about to level the inner space around St. Paul's, demolishing the iron railing which detracts so much from the dignity of its aspect, on the one hand, while creating, on the other, an unnecessary strait in the circulation of life at the core of the city that certainly destroys as completely, in noisy and irreverent squabbles and confusion, all the quiet dignity of its precinct.

Mr. Barber, a common councilman of the vicinity, acting on a suggestion in *THE BUILDER*—honourably acknowledged and quoted—has had printed, at his own expense, a circular pointing out the nature of the projected improvement, with a lithographed elevation of the building as divested of its ruffle of railing, and provided with a clear and open pavement and a widened street around it, but to be protected still where necessary, only close to the walls, and without derogation to the general effect of the improvement.

At considerable expense of time and trouble also, Mr. Barber obtained a requisition signed by forty-five of the principal firms located in the ward of Castle Baynard, calling a ward-mote, which was held on Friday last, when Mr. Barber explained his plan, and called attention to the western part of Westminster Abbey now fully exposed to the admirers of ecclesiastical architecture; to the improvements and alterations near St. Martin's Church, Westminster, effected with the same view; to the Royal Exchange and its noble portico, and to other public buildings. He said, with reference to his plan, that in order to accomplish it, the cost would be very inconsiderable: not a single house would have to be pulled down, and there was not a citizen of London who would be put to the slightest inconvenience by the carrying out of the improvement. He had earnestly invited the speedy attention of the ecclesiastical authorities and the corporation of the city of London to the proposition, and he felt confident that it would be kindly

received, because they had to deal with the exigencies of the present time, and not with the circumstances of fifty years back. It had been said that if the present prison-like palisading was removed, all sorts of nuisance would be committed. Now, the fact was, that at the present time many nuisances of an unmentionable character were committed there, and this, therefore, instead of being an argument for the retention of the railing, was a convincing one in favour of its removal.

Mr. Pritchard (the high bailiff of Southwark) was of opinion that this improvement was a matter of public necessity, and there was scarcely any one who had not been struck with surprise, now it was pointed out to them, that it had not been done before.

The meeting was addressed by various other gentlemen, and resolutions were passed, one of them to the effect that a petition be presented to the Commissioners of Sewers, praying that court to apply to the proper ecclesiastical authorities for the removal of the wall and iron railings, according to the plan before the meeting, and upon obtaining their consent, to adopt measures for its execution.

Mr. Barber, while responding to a vote of thanks for his exertions, said he fully hoped to see his plan realized by the time that London would be filled with foreigners from every land at the opening of the International Exhibition on 1st of May, 1851.

The proceedings evidently excited great interest, and the Wardmote was most respectfully attended by common-councilmen and other citizens.

The City Commission of Sewers have since considered the petition of the Wardmote, and unanimously resolved,—

“That the public convenience would be promoted, and the architectural beauty of the western end of the Cathedral Church of St. Paul much better displayed, if the dwarf wall and railing around the enclosed vacant area of ground in front thereof were removed, and the space paved with flagstones, in manner similar to that at the western end of the Royal Exchange.”

A deputation was also at once appointed to wait upon the Archbishop of Canterbury and the Bishop of London on the subject.



## BRONZE CANDELABRUM, VENICE.

This elaborate candelabrum forms the candlestick for the great Easter candle in the church of the *Salute*, and must certainly be reckoned among the finest works of the kind in Italy. It is remarkable that the artist who executed it is one who is not otherwise known, but he has fortunately recorded his name on this work as Andrea di Alessandro, Brescia. It is probable that he was a pupil of Alessandro Vittoria, who was employed in decorating this church, and from whom, according to the frequent custom, he may have taken the name Alessandro: this would fix the date of the work about the middle of the sixteenth century. The style of it confirms this supposition, on comparison with similar works by Vittoria. The numerous figures introduced into the composition are a mixture of sacred and profane,—the former, though at a small scale, occupying the prominent positions; the latter introduced more decoratively. The total height of the candelabrum is about 9 feet, including the pedestal of black marble on which it is placed: it stands in the usual position on the left-hand side of the high altar. It is, perhaps, hardly necessary to mention that the plan is triangular.

C. F.

## BRONZE CANDELABRUM, VENICE.

CONSTRUCTION OF ROADS.  
OBJECTIONS TO MACADAMIZED ROADS.

In the paper on "the Superiority of Macadamized Roads for the Streets of Towns," which was read at the last meeting of the British Association, held at Birmingham,\* the arguments deduced, and the deductions drawn therefrom, are of so erroneous a nature, that I desire to offer a few observations in reply to them.

It is my intention before venturing to record the results of my own experience upon the subject, extending over a period of upwards of twenty years, to draw your attention to the opinions of the most eminent practical men who have thoroughly investigated the matter, and whose opinions, as you will observe, are at direct variance with the theory laid down, and endeavoured to be established in the paper in question.

First of all, I will take the opinion of Telford, a man who rose from a very humble rank to the head of his profession, and who earned an European reputation as much from his talents as a road engineer, as from his professional connection with the greater part of the most important engineering works of this country in his day. It is generally admitted that Telford brought the art (if I may so term it) of road making to the highest state of perfection, and the sound principles he advocated, and the rules he laid down, continued to be acted upon with very great advantage, even in the present day, in many parts of the country. In his report of the street pavements of the parish of St. George, Hanover-square, he says, "Sundry modes have been proposed to get rid of the imperfect carriage-way pavement of the metropolis. One of the boldest of these projects has not only been proposed, but actually, to a certain extent, put in practice, by making a total change from a pavement surface to that of small broken stones.

This radical change appearing to me to require all the judgement and experience which can be brought to bear upon it, I have not only exerted myself personally to acquire information, but have submitted the subject to repeated discussions, at sittings of the Civil Engineers' Institution, which were numerous attended by many of the ablest and most experienced engineers and surveyors, not only of the metropolis, but of various parts of the country. The result of these able and very candid discussions, was a unanimous resolution, that a granite pavement, of proper form and depth, laid on a sound bottom, is preferable to any other mode for carriage ways for the metropolis and other large cities, in order to form a body of strength adequate to bear the pressure and shocks of innumerable carriages, many of them conveying several tons.

The chief objections to small broken stones were as follows:—That they cannot resist the pressure caused by a very great intercourse,

being liable to be thereby crushed and ground into dust, easily converted into mud; that this hasty and continual destruction and renewal would, in a great city, prove intolerably troublesome and expensive; while the dust in dry weather, and the mud in wet, would greatly incommode the intercourse in the streets and amongst private dwellings and public shops. Cases were instanced where absolute nuisances

had been created by employing broken stones; and that it was well known that, in some large cities, the want of pavements led to accumulations of filth, very injurious to the health of the inhabitants. It was observed, as a constant and abundant supply of broken stones would be required for repairs always hastily performed while the streets were empty, that receptacles, such as made in country roads,

\* See THE BUILDER, vol. vii., p. 461.



would not readily be found in London, where space is so valuable and so fully occupied." And he ended with these observations:—"Corresponding with my own sentiment and experience, I am led to recommend pavement in preference to broken stones for the carriage-ways of the streets of St. George's parish."

Sir John Macneill, C.E., who succeeded Telford, on the London and Holyhead-road (admitted by competent judges to be the most perfect line of turnpike-road in the world), entertained the same opinion, and has corroborated the accuracy of the views propounded by Telford, by a series of experiments made upon road surfaces of different constructions, with an instrument which he had invented for the purpose of testing the friction, or the labour of horses in draught.

The result of his observations, which are recorded in several treatises on roads, and are repeatedly referred to as unquestionable authority, are as follows:

1. On a well made pavement the draught is 33 lbs.
2. On a broken stone surface..... 65 "
3. On a gravel road..... 147 "
4. On a broken stone road, upon a rough pavement foundation..... 46 "

The machine was attached to a waggon, weighing 21 cwt., when the experiments were made.

Sir Henry Parnell, Bart., afterwards Lord Congleton, although occupying an elevated station in society, nevertheless, for the love of the science, made the practical part of road-making his peculiar study, and by constant and unremitted application, rendered himself thoroughly conversant with the most approved systems,—and he entertained similar views to those above stated, as will be seen by reference to his admirable "Treatise on Roads," which is a valuable standard work, and ought to be the text book to all connected with road works. Sir James M'Adam, who has greatly distinguished himself as a road regenerator, and rendered great service to his country by the numerous improvements he has been instrumental in carrying into effect on different roads in various parts of the country, has lived to change his views on the subject of the superiority of macadamized roads for the streets of towns; as, in a letter recently published, he admits that the introduction of macadamized roads in the City of London was a complete failure, and that he laments that circumstance ever taking place. This is the great author and founder of the system. From returns of the relative expenses of macadamized roads and pavements in the City of London, which appeared in the minutes of evidence given on the Westminster Improvement Bill, there is no less a difference, in ten years, than 2*l.* on every superficial yard; pavement for that time costing 10*s.* 10*d.*, and macadamized roads, 2*l.* 10*s.* 10*d.*

Mr. James Walker, an engineer of eminence, further corroborated the above opinion in his evidence given before a select committee of the House of Commons on the Commercial Bill. He says: "It is not, I am sure, overstating the advantages of paving, but rather otherwise, to say, taking the year through, that two horses will do as much or more work with the same labour to themselves upon a paved road than three upon a gravelled road, if the traffic upon the gravelled road is considerable; and if the effect of this is brought into figures, the saving of the expense of carriage will be found to be very great when compared with the cost of paving. If the annual tonnage upon the Commercial-road be taken at 250,000 tons, and at the rate of only 3*s.* per ton from the docks, it could not, on a gravel or stone road, be done under 4*s.*, or one-third per ton difference, which makes a saving of 12,500*l.* in one year.

I think I am under the mark in all these figures; and I am convinced, therefore, that the introduction of paving would, in many cases, be productive of great advantages."

Sir John Rennie, C.E., in his "History of Engineering," read before the Institute of Civil Engineers during the time he was president, under the head of "Paving," states,— "When the turnpike-road system was introduced, the pavement of the metropolis was improved by the substitution of square blocks of granite, in place of the rounded boulders, or large irregular pebbles, which had previ-

ously been used. Blocks of granite of various dimensions have, by way of experiment, been laid on concrete, with the joints grouted with lime and sand, in order to insure the greatest stability amongst the blocks. M'Adam's system was introduced in some streets where the traffic was light, but it did not equal the granite paving."

Mr. Hayward, the surveyor of the City of London Sewers Commission, in the evidence he prepared for the Metropolitan Commissioners of Inquiry, but which was not published in the report, says, that although every kind of road surface had been tried in London, he entertains an opinion in favour of the narrow 3-inch sets as the best road surface under every circumstance, as stated in the report, and which was copied in your journal, No. 353, page 535. Mr. Kelsey, the former City surveyor of London, estimates the expenses of the different descriptions of pavement to vary in the different streets to from 1*d.* to 3*d.*, or an average of about 1*d.* per superficial yard per annum.

Mr. Newlands, the borough engineer of Liverpool, in his report on the sewerage and other works of that important borough, enters very fully into the question. At page 85 he observes—"If the streets of a town be unevenly paved, putrid exhalations will arise from the accumulations of filth in the hollows and joints of the stones, which neither the scavenger's brush nor water can remove.

A smooth non-absorbent surface, from which the dirt is easily removed, without hollow or open joints to collect the filth, is what health demands, when it possesses in addition the quality of hardness; and such a surface offers the least resistance to traction.

Tested by this, a macadamized street is the worst that possibly can be made. In such a street the soft absorbent material becomes soaked with liquid filth, which, putrifying, sends its noxious exhalations into the atmosphere. Where there is a great traffic, the road wears so fast as to be constantly under repair, while, by every indentation of the surface, and the laying on of loose materials, the friction is immensely increased. In wet weather it is covered with mud, and in dry weather the air is loaded with the dust of the disintegrated stones mingled with the filth caused by the traffic, producing disease of the respiratory organs, and rapidly deteriorating food and clothing in the houses, and the articles exposed for sale in the neighbouring shops. If to these evils it is added, that a macadamized road is the most expensive to keep in repair, and costs four times as much to cleanse as a paved road, I shall be borne out in saying, that such a road in a town is an expensive nuisance which should be done away with as soon as possible. The next lowest in the scale of roads, both as regards health and traffic, is one formed of boulder pitching. Such a road, from the amorphous forms of the stones, cannot be made with a very even surface; the joints must necessarily be very wide, affording large receptacles for filth; and this irregularity of the bases of the stones rendering it difficult to give them a solid bearing, they are acted upon unequally by the traffic, and ruts and hollows are speedily formed. Streets formed with stones dressed in regular courses are the best; and on sanitary considerations, and also as far as the diminution of friction is concerned, the stones should be smooth and the joints close.

The proper space will be found to be about 4½ inches, of which about 3 inches may be given to the stones and half as much to the joint. To prevent the filth from accumulating in this wide joint, and also to keep the stones steadfast in their places, it should be filled up, nearly flush with the surface of the stones, with some cementitious substances impervious to moisture.

To insure stability, the courses should be made nearly wedge-form; they should be in contact at the base and for about one-third of their height, and the width of the joint should be obtained by diminishing the width of the upper surface of the courses. The joints should be rammed hard with macadam or clean shingle and then filled with a coarse kind of asphalt, composed of the pitch of gas tar and small gravel. A few of the streets of Liverpool have been repaired upon this principle, and, as far as my observations have gone, appear to answer the purpose intended. Mr. Newlands

insists upon a sound and durable foundation being previously prepared. Mr. J. W. Lather, C.E., in a report recently published on the sewage, &c., of Leeds, condemns the system of repairing the streets of that populous borough with small broken stones and round pebble pavement, and suggests the desirability of substituting square-set pavement, as the most economical and healthy for the inhabitants. His plans, I believe, are intended to be carried out by the corporation.

In the populous and important borough of Manchester like opinions are entertained, as the authorities there are gradually extending the system of narrow square-set pavement, so that eventually macadamized roads and round pebble-stone pavement will be entirely superseded.

This pavement, which is composed of sets of Pennanmawr stones, is laid in courses from one inch to one inch-and-a-half asunder, and the cavities between the rows are filled in with small broken stones mixed with gas tar, as suggested and adopted by Mr. Newlands in Liverpool; but I observe by the *Manchester Guardian* that complaints are made that this process renders the surface of the stones slippery to travel over, and if such is the case it will doubtless be abandoned.

It is very generally remarked that the principal streets in Manchester are kept in a better state of repair than those of any town in the kingdom; in fact, they are looked upon as models of street-surfaces by the authorities of the surrounding towns, and I think very properly so, too: this I attribute to their wise policy of discontinuing to use the round pebble pavement, and their abandonment of the self-exploded system of macadamization. In fact, so generally is the system of square set pavement being introduced and extended in the principal towns in the United Kingdom, that multitudes of other instances could be adduced to show the general feeling that prevails even amongst the public at large, without reference to the opinions of scientific men, as to the unsuitableness of small broken stones for the streets of towns, and of the almost equally objectionable round pebble pavement.

I must defer entering minutely into the statistical and practical part of the subject until a future opportunity, when, I doubt not, I shall be enabled to convince those who may be sceptical, that the aid of science may, with great public advantage, be enlisted in the cause of the sanitary and general improvement of our towns, and that we ought not to be led away or retrograde in the onward march, now the spirit of improvement is abroad, by the adoption of the stale and somewhat threadbare theory of "the superiority of macadamized roads for the streets of towns."

BAYLIS.

#### LINEAR PERSPECTIVE.

IN an article upon this subject in the opening number of the present volume of *THE BUILDER*, it may be remembered that I professed solely to answer the objections alleged against the science, as at present received, by a writer in the *Art-Journal*, who had presumptuously declared that it was not true—not to oppose any other scheme that might be presented for notice. In the exposition I then gave, Mr. Heald, of Carlisle, has, in an essay since published in these pages, courteously acknowledged his concurrence. Yet, without proposing a change in the form of the picture, he has introduced an entirely different theory. Now, as in my former papers it was demonstrated that, without this condition, no alteration can be made in the system of perspective, his proposal is an attempt to substitute known and acknowledged imperfection for what, as he himself admits, is really perfect!

But let us examine the system he has advanced, and for which he has instituted so able a defence. Let us do this, and compare it with perspective as now used. When we have done so, the former will not, I think, appear "equally true," nor be found to have "the additional recommendation" either "of greater beauty or a more extended range." He says, that in "cylindrical perspective" "every eye looking at it (the picture) must be in the point of sight." Now, the fact is, no eye can be in the point of sight, for there is no point of



sight. There is a line of sight, along which, to view each part with anything approaching to correctness, the eye must travel; but, as a whole, which every picture must be, or it is no picture in the artistic sense of the word, no eye can positively view it aright. Whereas, in linear perspective, there is a point opposite the picture, generally in the centre, and which a person at all acquainted with pictures has no difficulty in finding with sufficient exactness, from which a view absolutely correct can be obtained. The picture, as drawn upon the cylinder, will, of course, be correct; but, when flattened out, and hung against the wall, it will be so no longer, as it cannot then be correctly viewed from one point. In fact, the theory is founded upon a false idea of a picture, which it presupposes may be a series of ideas and effects, unfolding as the eye travels on the line of sight; whereas unity of idea and composition is essential to a picture. A picture, in the artistic and proper sense of the word, is one composition, embodying one leading or grand idea to which everything else contributes. There may be some minor ideas and effects, but, like episodes in a poem, they are all to illustrate the main one, which must strike the spectator at once, or the picture is a failure. To contemplate the harmony and beauty of any picture, properly so called, it must be viewed from one point; all its groupings, light and shade, colour, and the rest, were taken, or imagined, from one point by the artist. Any pictorial representation that could not be viewed at one, but at two or more definite points, would in reality be two or more pictures, as the case might be. A panoramic view of a large tract of country would, perhaps, be most advantageously painted on the plan proposed by Mr. Heald; but such views are not in reality pictures; their production does not belong to art. While it is essential to the nature of a picture, essential to the development of the subject, that it have but one point of view, if it cannot be viewed from one point, its groupings and composition, its breadth of light and shade, its harmony of colour, all that excites the artist so much thought to obtain,—and which so beset his path with difficulties, are lost.

Mr. Heald, does not see clearly what are the demands, or the limits of the demands, of pictorial art on the aid of perspective.

Let us consider the nature and origin of the latter, and its connection with art. Perspective is the daughter of geometry, and the hand-maid of art, a priestess at her altar. Now, as the legitimate offspring of geometry, her ministrations to art, as far as they are rendered, must of necessity be truthful, and their truthfulness Mr. Heald admits. The only question, therefore, is, are the services of sufficient extent? or, in other words, is perspective equal to the discharge of those functions which art requires of her? Now, she has long held office in the temple of art, and has never failed in her duty, when rightly invoked; yet here are gentlemen who ungallantly propose to discard her in favour of another, some nondescript scion of optics, confessedly less correct in her conduct, but supposed to be more accommodating than her predecessor.

One of the advantages said to be gained by this change is greater scope; that is to say, the privilege to go beyond 60 degrees. Now, perspective is not deficient on this point; it will go as far as the law of our sight allows us to see. But if 60 degrees were its greatest truthful scope, no valid objection could be founded on that, for anything beyond 60 degrees is as much uncalled for as is an increase in the gravitation of the globe, or any other innovation in the works of nature. No artist has ever had cause to complain of want of "scope." The grandest conceptions of genius have been embodied within that angle. We never heard that Claude Lorraine, Poussin, or any other landscape painter, among the old or modern masters, ever sighed for greater scope, or felt their genius cramped for lack of it. It is the latter-mentioned class of artists that requires the greatest scope. In "history," any difficulty on this score is out of the question. But even landscape artists have abundance of scope within 60 degrees. Judicious ones, I believe, frequently prefer to concentrate their skill on a small portion—within half that angle. When a large extent of country is to be introduced into a landscape, the plan is to

increase the distance of the point of sight, and thus decrease the angle under which it is viewed. Further, other difficulties in the management of the picture increase too much along with increase of extent, for any artist to wish for it, who is awake to the arduousness of his profession.

I assert the inviolability of the perspective medium, or plane of the actual picture, because it is not only a true, but the only convenient one; indeed, we can have no other. In my letter in the *Art-Journal*, I remarked that the perspective medium or picture might be a segment of a sphere (rather a difficult form for canvas or paper to assume), but the insurmountable objection to this form being practically carried out every artist knows; the picture would inevitably be spoiled to the view by the play of light and shade of the spherical surface itself, and which the plane in common use avoids.

Since the publication of Mr. Heald's theory, a third essay from Mr. Herdman, in support of his views, and written, I believe, two or three months ago, has appeared in the *Art-Journal*. To this, I think, my former paper in *THE BUILDER* will be considered a full reply. The whole seems to be a confused wandering from the true point at issue; a "darkening of counsel by words without knowledge;" and I can only now add, that, if the writer, after all the pains taken to enlighten him, is still unconvinced of his error, further argument on the subject would be useless.

SAMUEL HUGGINS.

#### THE BUILDING FOR THE '51 EXHIBITION.

THE committee appointed to advise on "all matters relating to the building," have invited suggestions for the general arrangement of the buildings and premises required.

They do not offer any pecuniary reward for such plans:—they anticipate they may not be limited to the selection of any one plan, but may derive useful ideas from many; and that "the best plan may be determined upon by the help of this general assistance." They propose to make a report, in which they will acknowledge by name those whose plans have been wholly or partially adopted, and perhaps offer some honorary distinction to the successful contributors.

A plan of the ground has been engraved, and may be had on application to the secretaries of the Commission, at the New Palace at Westminster, together with the rules and conditions, which are to be strictly observed.

In these it is set forth, that the communications from contributors must consist of a single sheet of paper, not larger than the engraving, with a simple ground plan upon a scale of  $\frac{1}{16}$  of the full size, with such elevations and sections only of the building, and on the same sheet, as may be necessary to elucidate the system proposed—such elevations and sections not being intended to convey more than a general idea of the building, and not entering into details of construction or of architectural decoration; to be accompanied by a short clear written explanation of the system recommended, on a separate sheet.

The plans, &c., must be sent on or before 8th April next, addressed to the Secretaries of the Exhibition, New Palace at Westminster, London.

It is suggested that the most convenient mode of preparing the plan, elevation, and section, would be to draw them upon one of the engraved copies of the plan of the ground which accompany the instructions.

The existing groups of trees must be preserved.

"The roofed portion of the building is to cover a space of 700,000 square feet, or about 65,000 square metres; and the whole building must not occupy, including open spaces, an area of more than 900,000 square feet, or about 84,000 square metres. The building generally will be of one story only.

No space will be required for cattle, or for shrubs or flowers.

It may be assumed, so far as it affects the ground plan, that the light will be obtained entirely from the roof, and the building will be constructed of fire-proof materials."

The general requirements are:—

1. Simplicity of arrangement.
2. Economy of space.
3. Capability of extending or curtailing the building, without destroying its symmetry as a whole, or interfering with the general arrangement. It being impossible to determine the exact extent of roof required until a late period of construction.

4. Adaptation for the erection of separate portion of the building at different periods.

5. Conveniences of ingress and egress, with facilities of access to all parts of the exhibition, either from the exterior or interior.

6. Means of classification of the various objects of different departments.\*

7. Wall space for the display of articles requiring it.

8. Means of affording private access and accommodation for exhibitors, with counting-houses, if required, committee-rooms, council-rooms, public refreshment-rooms, and all other public and private accommodation. (This portion of the building may be in two or more stories, if required.)

9. Internal arrangements, by which, under proper regulations, large crowds of visitors may circulate freely, and have convenient access to all parts of the exhibition, and uninterrupted means of examining the various objects exhibited."

#### ELECTRO-TELEGRAPHIC PROGRESS.

We should not make much progress, apparently, if the present monopolizers of this important public property were to have it all their own way. As regards the *general use* of the electric telegraph, at charges available to the public at large, they have hitherto been acting the part of the dog in the manger, neither providing for it themselves nor willing to allow others to do so. Complaints, intemperately urged, doubtless, by parties instigated by the company's high charges and official impromptitude to exert themselves in the establishment of a *people's* telegraph, have been smartly snubbed by actions of damages for defamation of personal character, while the new company's bill in Parliament has itself been quite as defamatorily characterized, on the part of the old, as "an attempt to extort money" from the monopolizers, so that the arrestment of its progress might be prayed for; and, in fine, that progress itself has been, by a side wind, further interfered with, and the spirited extension of the telegraph across the channel, in international communication with our French neighbours, by Mr. Brett, revenged or circumvented, by other law actions, in which this "dog in the manger" virtually claims the exclusive use—if we can call it so—of electric currents for telegraphic purposes at all! and that, too, although the principal patent on which the company claims, is actually about to expire, being now in the last year of its existence! At same time that it thus shows symptoms of a determination to "die hard," we are glad to observe some slight symptoms of a better spirit, which would have been much more likely to have benefited the company than such proceedings had they appeared in time. It is reported that reductions of the charges on all messages, to 10s. for every twenty words, transmitted upwards of 250 miles, have lately been made. Now, whatever *value* the public may set on the animus of such reductions so tardily begun, it is certainly a pity the hint was not taken at once, when the feeling of the public was first decidedly expressed, in the rapid circulation of our little paragraph through the known organs of public opinion, the newspaper press. The pursuit of a bold and rapid course of progress further in the same direction, might even yet perhaps convince the public and the Legislature of the non-necessity of another company. Meantime there is not a moment to lose; for notwithstanding the attempt to damn the new bill in the estimation of the Commons it has been read a second time and ordered for further progress.—The French bill for opening the State electric telegraph of France to the public is under weigh. By Art. 6, private despatches are to be charged,—from 1 to 20 words, 20 centimes per myriamètre (10,000 mètres); from 21 to 40 words, 35 c.; from 41 to 60, 50 c.; from 61 to 80, 65 c.; from 81 to 100, 80 c.;—above 100 2 c.

\* The Commission have determined upon the following classification:—

Section 1.—Raw Materials and Produce,—illustrative of the natural productions on which human industry is employed.

Section 2.—Machinery for Agricultural, Manufacturing, Engineering, and other purposes, and Mechanical Inventions.—illustrative of the agencies which human ingenuity brings to bear upon the products of nature.

Section 3.—Manufactures,—illustrative of the results produced by the operation of human industry upon natural produce.

Section 4.—Sculpture, Models, and the Plastic Art generally,—illustrative of the taste and skill displayed in such applications of human industry.

Of which, Sections 2 and 3 will probably require by far the larger space.



per myriamètre for every additional word. By Art. 9, the longer despatches may occasionally be delayed till short messages be transmitted.

—In the *New York Journal of Commerce*, Mr. John Wilkins details how he proposes to lay down the projected Atlantic telegraph. A repeating station in the first place 500 miles off Newfoundland, the last available mooring ground on that side, would diminish the great submarine stretch, he observes, to 1,600 miles, or little more than half the length of way to Ireland. As for the main part of the scheme itself, he proposes, whatever be the depth, to lay the line along the bed of the ocean, the average depth of which, however, he estimates at not more than two miles. But submarine valleys of even 10 or 12 miles in depth, and 40 or 50 miles across, he suggests, may easily be crossed, by festooning on floats at intervals of two miles, and within 200 fathoms of the surface. He has arrangements, he says, for sinking the line to the bottom, even were it 10 or 12 miles. This he would effect by intervening floats, revolving at different depths, and properly adjusted in their centres of buoyancy and gravitation, so as to relieve the upper stages of the line from strain. There would be accessible connections 100 miles apart, or nearer, secured by moored floats, with flag-staffs, to guide the telegraph tender in taking up any damaged portion. Damage, however, at such a depth he does not seem to anticipate. Twelve months, he thinks, ought to complete it, at an expense of not more than half-a-million of dollars "honestly spent." Two ships and a tender, with winding machinery, &c., would suffice.—Mr. Bain claims the origin of Mr. Bakewell's electro-chemical printing telegraph, and Mr. Isham Baggis, in a letter to the *Mechanics' Magazine*, lays claim to the origin of Mr. Bain's idea. Such is the fate of all ingenious ideas: we only hope that the anxiety of the claimants is denotive of the assured and speedy practical realization of its every-day use to the public.

#### THE GRAVE QUESTION.

It would not, I think, be easy to greet the people of London with better tidings than those shadowed forth in the report of the Board of Health, upon metropolitan burials, as quoted in your last number. The mighty charge of the annual burying of 50,000 dead is treated as becomes the high authority of the Board; and, at last, as becomes the dignity of the charge itself. That vast army then will no longer rot unburied amidst the homes of a nation whose outskirts are within cannon range of its centre. How long now shall the diurnal tide slop back our excrements into our cisterns, and the cloacinal mud of the Thames send up its upas vapour, to sap our vigour, waste our taxed means, and blight our happiness? "How many hours of expensive idleness upon trembling sick beds, or around fetid graves, yawning prematurely for beloved friends, might last year have spared, if 22,000*l.* per annum had, for a little while past, done its work! 22,000 pounds! and what more? a corpse for every pound." The wildest injustice this, that for our own past supineness the door posts of a *dilettante* commission should be bespattered with all the waste blood of 1849.

But let it have a care; be it never so difficult to make a quorum,—be it never so difficult for a quorum to know, to discern, to decide,—1850 carries not, and nine of its leaves are yet to read.

Still it is pleasant now to look out and forward to the sunny fields at Erit, and the lark soaring over the peaceful graves. Grave! a definition and a warning: "six cubic yards of earth over a man's body, sacred, from the sod downwards, until the last trump."

#### VOX DE SOCCO TERENCE.

**PROPOSED TESTIMONIAL TO SIR ROBERT PEEL.**—Some of our subscribers have requested us to inquire what has become of a (penny) subscription paid into the office of the *Morning Advertiser* some time ago, for the purpose of raising a statue to Sir Robert Peel. Doubtless the conductors of the respectable journal in question will give information on the subject, if applied to.

#### Miscellaneous.

**INSTITUTION OF CIVIL ENGINEERS.**—On Tuesday, February 26, Mr. William Cubitt, President, in the chair, the paper read was "On the Street Paving of the Metropolis, with an Account of a peculiar System adopted at the London and North-Western Railway Station, Euston-square," by Mr. William Taylor. The system was upon entirely new principles. The method employed was, after removing the sub-soil to the depth of 16 inches, to lay a thickness of 4 inches of strong gravel, equally and well rammed, then another layer of gravel mixed with a small quantity of chalk, or hoggin, for the purpose of giving elasticity, the ramming being continued as before; a third coat, of the same materials, was then laid and rammed, a regular degree of convexity of surface being preserved. The stones used were of Mountsorrel granite, dressed and squared into regular masses of 4 inches deep, 3 inches thick, and 4 inches long: these stones were laid in a bed of fine sand, 1 inch in thickness, equally spread over the surface of the substratum, and they were carefully placed, so that no stone should rock in its bed. The whole surface was then well driven down with wooden rammers, weighing fifty-five pounds each. The small size of the stones enabled them to be well rammed home, so that the surface of the pavement never sank, and the hardness and toughness of the material prevented the stones from being worn down by any traffic, however heavy. It was stated that this system was found infinitely preferable to the employment of large stones, and the statement of cost was vastly in its favour; the price of the ordinary kind of granite paving, in London, being 18*s.* per superficial yard, and the maximum cost of the new, or "Euston" pavement, including the substratum, was not 12*s.* per yard, and, deducting the value of the old stones, not (in this latter case), claimed by the contractor, the net cost would only be 9*s.* per yard. On the 5th inst. the discussion of this system of street paving was resumed, and was extended to such a length as to preclude the reading of any paper.

**THE OPENING OF THE BRITANNIA TUBULAR BRIDGE** took place on Tuesday last, when Mr. Stephenson drove in the last rivet of two millions now clenched in the plates of this triumph of engineering skill. A train of three locomotives, with Mr. S. as the driver of the first, and accompanied by a number of engineers and other gentlemen, anxious to brave the first peril, if it could be called so, swept slowly through the tube, with a weight of 90 tons and upwards, resting in the middle, but without the slightest appreciable vibration, deflection, or other influence on the tube. Another train of 300 tons' weight followed, and the experiment was wound up by a sterner ordeal still, in the resting of a train of 200 tons weight of coals for two hours on the centre of the Carnarvonshire tube, which was not deflected more than  $\frac{1}{8}$  of one of the 13 inches, said to be consistent with its safety. We hope to make a personal inspection soon.

**SUBSTITUTE FOR WINDOW-TAX.**—To those who, like yourself, are seeking for the speedy abolition of the window-tax, I would submit for consideration, that a tax equitably adjusted by scale to the assessed rental of each house, so as not to impose any additional burden in any instance, might be advantageously and fairly substituted for that obnoxious impost on light and ventilation. The Government is already in possession of all the information required to carry the scheme into execution, and collects, indeed, at this present time, a tax on that very basis. Those who respectively pay the present window-tax should, of course, pay the proposed substitute. In the course of working out the details of the new impost, it might, perhaps, be possible to create something of a surplus sufficient to allow of the total remission of the excise duty now levied on the manufacture of bricks. Any partial remission would be, I think, of little benefit to either manufacturer or consumer, but only so much lost to the revenue.—W.

**INSTITUTIONS FOR THE BLIND.**—Mr. S. Hemming has been chosen architect for the intended new building at Birmingham.—Preliminary operations for the erection of a new blind asylum and church have been commenced at Liverpool, on a site between Hardman-street, Hope-street, and Hope-place.

**PROJECTED WORKS.**—Advertisements have been issued for tenders, by 23rd inst., for enlarging, repaving, and restoring the parish church of Little Harrowden (Northampton); by a date not specified, for the erection of a dwelling-house and farm offices, at Tilton-on-Hill, Leicester; by 1st proximo, for the construction and erection of the iron roofing over new London terminus of Brighton and South Coast Railway; by 22nd inst., for the erection of about 40 carcasses of houses at Dalston; by 14th inst. for squaring and laying 200,000 feet of 2½ inch Yorkshire paving in St. Marylebone; by 5th proximo for repairing stone tramway and laying down foot pavements and kerbing in Commercial-road; by 20th inst., for cutting, forming, and making about 1,200 yards lineal of streets at Coventry, and for forming and planting pleasure-grounds, putting in culverts, cesspools, sluices, drains, &c., at Swanswell Pool, Coventry; by 25th inst., for the erection of infirmary chapel, consulting-rooms, &c., at Worcester Infirmary; by 12th inst., for maintenance and repairs of stations and works on the Brighton and South Coast Railway; and by 19th inst., for the execution of a short branch of the Midland at Birmingham.

**VIEW OF ROME WITH THREE EFFECTS.**—A clever dioramic view (of part of) Rome, under different circumstances, is being exhibited at the Walhalla, in Leicester-square. After a day-light picture with St. Peter's as principal object, night closes in, and the illumination of the cathedral, one of the most remarkable sights in the wonderful city, is represented: to this succeeds a storm, which afterwards clears off, and then the army of France are to be imagined entering the city. This picture is the work of one of a name known in more than one walk of art.

**METROPOLITAN COMMISSION OF SEWERS.**—At the general court held on Friday in last week, Lord Ebrington, in the chair, and present, Sir J. Burgoyne, Captains Dawson and Harness, and Messrs. Hawes and Hardwick, after some routine business, Mr. Cubitt got leave to build 1,400 feet of sewer in Kenilworth-street, and the Lambeth Water Works Company, conditionally, to drain into the Belvidere-road sewers. A motion for giving a superannuation allowance of 120*l.* a-year to Mr. J. Newman, late surveyor in the Surrey and Kent Commission, was postponed till next court day, when we hope it will be agreed to. The court then passed a resolution approving of the efforts of the Sewage Manure Company, to remove sewage from the Thames, and promising to all such efforts every encouragement consistent with the interests confided to the commission.

**REGISTERED BRICKS.**—At the Oxford circuit lately, it was decided by Mr. Justice Cresswell that "a design for making ventilating bricks, with only half the taxable quantity of clay in an ordinary brick" might properly be registered and not patented, and that even if it were such an invention as might be patented, the inventor, under the late Registration Act, was at liberty to waive the greater privileges which he should enjoy by taking out a patent, and content himself with the minor advantages afforded by his proceeding under that statute."

**TO PERSONS SENDING TESTIMONIALS.**—A correspondent, "J. P.," asks us to caution foremen, clerks of works, and others who may have occasion to reply to advertisements, against enclosing their original testimonials, he, by doing so, having "lost a ten years' character." Copies only should be sent in the first instance. The number of applications in such cases usually renders reply on the part of the advertiser to each applicant, or the return of documents, impracticable. In answer to one advertisement in our columns for a clerk of the works a few weeks ago, more than 150 letters were received!

#### MEETINGS OF SCIENTIFIC BODIES

To be held during the ensuing week.

TUESDAY, March 12.—Institution of Civil Engineers, 8 p.m.

WEDNESDAY, 13.—Society of Arts, 8 p.m.

THURSDAY, 14.—Royal Society, 8½ p.m.; Society of Antiquaries, 8 p.m.

FRIDAY, 15.—Architectural Association, 8 p.m.



pleasant smell of turpentine, and it is so much complained of, is gone almost as soon as the work is finished.—Address, JOHN MITCHELL and CO., Distillery, Phoenix Wharf, Battersea.







# The Builder.

No. CCCLXXI.

SATURDAY, MARCH 16, 1850.

**W**HEN Mr. Roberts read his essay on the "Dwellings of the Labouring Classes," reported in our journal, he mentioned that the hollow tiles used in the construction of the roofs and floors of the Stream-street Model Houses for Families were passed free of duty by the supervisor, on the ground of their being roof and floor tiles, and not intended to be used in the construction of walls. A few days after this statement had been made, an officer from the Board of Excise called on him for some explanation, and was referred to the clause in the Act 2 & 3 Vict., cap. 24, which specially exempts roof-tiles from duty; the board have, however, decided, not only that they are liable to duty as bricks, but that double duty shall be charged on account of the external dimensions, cubing to more than 150 inches, although the actual cubical contents of clay are less than 140 inches. Such a decision appears to be in direct opposition to the Act, which provides explicitly for ascertaining the cubical contents of bricks, where any doubt may arise as to the rate of duty to which they are subject, and explicitly states that it shall be decided by pressing the clay into a mould 10 inches long, 3 inches thick, and 5 inches wide; and if the clay is not more than sufficient to fill such mould, "the bricks shall be taken to be bricks not exceeding 150 cubic inches, and subject to the lower rate of duty."

The essay has since been published,\* and the author has appended to it the foregoing statement with the following remarks:—"A more striking proof of the injurious effect of this impost, as well as of the present system of levying it, can scarcely be instanced. The use of a mode of construction calculated to prove generally beneficial, as securing the important advantages of rendering roofs and floors fire-proof, sound-proof, and water-proof, with a degree of lightness otherwise unobtainable, is thus likely to be impeded, and the dwellings of the lower classes deprived of the benefit which would result from the general adoption of a system calculated to add essentially to the comfort and durability, not only of the lowest, but of the highest class of buildings."

He continues:—"The duty on bricks, levied according to the letter of the Act, offers a sufficient barrier to the exercise of inventive skill, in turning to the best account a material which Providence has placed so largely at the command of the architect for the benefit of his fellow creatures; but when double imposts are levied where the law does not enact them, he cannot but sigh for the legislative adoption of free-trade principles in reference to articles of home produce and manufacture, as well as in those of foreign growth and produce."

A committee of the "Metropolitan Sanitary Association," appointed to inquire into the condition of the houses of the poor, the causes

of that condition, and to suggest a remedy, have reported—

"First—That the Building Acts passed since 1774 have had the effect of injuriously limiting the size of the houses, and have consequently been a chief cause of the confined and miserable dwellings of the humbler classes in the metropolis.

Secondly—That the health of the people is greatly dependent on an ample supply of light and air, and that the window tax has had a tendency to diminish that supply, and to cause the erection of badly lighted and imperfectly ventilated houses.

Thirdly—That the brick and timber duties have caused the dwellings of the poor to be constructed of bad materials, the tax payable on bricks having compelled the makers to bring into use those which would otherwise have been thrown aside as worthless, and the duty on timber having favoured the use of that kind most subject to decay.

Fourthly—That the present state of the law, with reference to the transfer of land and buildings, has encouraged the practice of land being let on building leases, instead of being sold, which, in addition to other inconveniences, has caused the erection of houses defective in construction, and therefore prejudicial to the health of the inhabitants."

This is beginning at the right end: to ask for legislative enactments to remedy evils, while the causes which produced these evils are left in operation, would be farcical.

We should be glad to see a petition against these injurious taxes from the Royal Institute of British Architects. The Liverpool Architectural Society have just now set them the example. Their petition sets forth,—

"That the duty upon bricks tends materially to retard improvements in their manufacture, operates against the sanitary measures at present engaging the attention of municipal bodies throughout the country, and is especially severe on the industrious classes of the community.

That the window-tax is unequal in its operation, and materially affects beauty of design and commodious arrangement, limiting the skilful distribution of light and air in the dwellings of all classes.

That by the imposition of these duties the progress of architecture in the track of civilization and refinement, in which your petitioners are deeply interested, is obstructed, while their repeal would be hailed as a great boon by all classes as conducive to the best interests of the kingdom."

It appears that the amount of duty collected upon bricks during the year 1849 is shown to have been 448,826*l.* 19*s.* 3*d.*, of which 422,812*l.* 18*s.* 8*d.* is for the country, and 26,014*l.* 0*s.* 7*d.* for London.

For this comparatively small sum the poor are badly lodged, the community are taxed to double that amount, industry is checked, and architecture injured. The recent vote of the House of Commons against the duty on timber for shipbuilding, as well as the discussion on Mr. Hume's motion, shows a disposition to give industry fair play, and we do most sincerely hope that the Chancellor of the Exchequer will speedily give evidence that he, too, feels properly the importance of such a course.

The brick duties and the window duties must be abolished before any great real advance will be made in sanitary improvement.

Good health, good order, morality, love of the beautiful and the delight it gives, would all be furthered by this step. The window tax and the brick duty conspire against the happiness and progress of society, and help to fill our hospitals and prisons. Away with them, at once and for ever!

"There's a cry from kennel streets,  
Where the poisoned air completes  
Social ill and moral blight;  
If ye would not fill our gaols  
Out of crimes which such entails,  
'Shut not out the Light.'

Light belongs to man and woman,  
God hath made the blessing common,  
So to cheer the heart and sight;  
Yet a cry from roof to basement,  
Comes from many a darkened casement,  
'Shut not out the Light.'"

Measures of real importance for the im-

provement and adornment of the metropolis proceed but slowly. There has been more talk than work; advantage has not been taken of the tide in favour of improvement, and if its friends now relax their efforts, it will turn, and their object will be deferred. "Custom soon melts off the wings which Novelty alone lent to Benevolence."

The formation of new streets in the City goes on slowly and badly. One of several correspondents on the subject says,—"Your recent remarks on the state of the new Houses of Parliament would apply to the City improvements. I was perfectly astonished the other day when in the City, to witness such a picture of idleness; no wonder that the building trade languishes when we see Improvement Committees, as they are called, beginning their work at the middle instead of at the end of the street. No builders in their senses would speculate on such ground as is now offered to be let, without a proper approach to their houses."

The proposal to throw open St. Paul's, ably brought forward, on our suggestion, by Mr. Barber, has been received everywhere with favour. The Aldermen, the Members for the City, and the Sheriffs, will form part of the deputation to the Dean and Chapter.

St. Paul's needs opening in more ways than one. The Chapter may get rid of other *railling* besides that on the outside by abandoning the "two-pence," and re-arranging the scale of fees for visiting the upper parts of this mighty structure. The letters sent to us on this subject are numerous. We will adopt one of them:—

Some time back (says our correspondent) you gave insertion to a communication on the subject of the charge which is at present made for admission to our great cathedral. The obnoxious impost has been condemned by nearly the whole of the metropolitan press, but the dean and chapter have as yet been proof against all remonstrance. The charge in question, it is true, is only twopence, but the smallness of the amount renders the tax still more ridiculous and unnecessary. The cathedral is *essentially* a public edifice, and as such should, like the British Museum, the National Gallery, and the like public exhibitions, be open to the public at large gratuitously. It is notorious that the beautiful cathedrals on the continent are open to the public generally, free of charge, and why should not the same privilege be enjoyed in this country? What must a foreigner think, on presenting himself at St. Paul's Cathedral, to be told that he cannot enter its portals without being subjected to an exaction of twopence? Surely, Sir, it is a standing disgrace to liberal England to tolerate such an exaction! As, therefore, there will be an enormous influx of foreigners from nearly all parts of the habitable globe, in the year '61, to attend the great exhibition of the works of industry, it is to be hoped that the odious impost in review will be entirely abolished. Let it not be said, on their return to their native places, that they were not permitted to enter the sacred and stupendous structure in the heart of the city of London, without first putting their hands in their pockets, and paying the sum of twopence. And then the charge for viewing the various parts of the building is unquestionably most exorbitant. How many poor people from the rural districts of the provinces there are whose means will not enable them to pay 4*s.* 6*d.*! I hope you will again lend your aid in extinguishing such obnoxious exactions.

\* "The Dwellings of the Labouring Classes, their Arrangement and Construction; illustrated by a reference to the Model Houses of the Society for Improving the Condition of the Labouring Classes," and other Buildings recently erected." With Plans and Elevations. Published at 21, Exeter Hall, Strand.



What has become of "The Society for Opening Public Monuments to the People?" An effort now on their part might be useful.\*

#### EFFECT OF THE WANT OF REALITY ON THE WORKS OF MODERN ARCHITECTS.

AGREEING, as I do, with every word that Mr. Pugin has written in reply to the remarks in the *Rambler*, as quoted in your last leading article, I think the question there entered on so important to architects and architecture in general, that I propose to make a few remarks on the subject.

Were it only one architect that made the complaint, it would not, perhaps, be worth while alluding to it; but every architect of the present day has, I believe, said the same thing. In other words, and every building shows evident marks of having been submitted to the pruning process complained of in Mr. Pugin's pamphlet. The facts, indeed, of the case, I believe to be universally admitted. The question is, the causes of their existence; for there are no facts in the world without causes, or which are intelligible without their antecedents being more or less understood.

To me the cause of all the difficulty appears so self-evident, that the only difficulty is to understand why all the world does not see it as clearly as myself; but they do not, and it is possible, therefore, that I may be mistaken; but, at all events, allow me to try to state my view of the case, and leave others to judge of its correctness or otherwise.

Before descending to particulars I must first try and state the question generally. Anterior to the Reformation in the sixteenth century, architecture in Europe, and in all other countries down to the present day, was a progressive art, in which copying and retrocession were unknown, and decorated construction the elemental formula.

Subsequent to the Reformation a new element was introduced in Europe—that of copying antecedent and dead styles; progress was unknown, retrocession the fashion, and construction generally concealed. Prior to the Reformation, all buildings in Europe—and down to this day in all other countries—were satisfactory, more or less beautiful, and worthy of study. Subsequently to that period none are quite satisfactory in Europe, and all contain falsehoods and deformities, of which we become ashamed as soon as the fluctuating fashion that produced them has passed away.

Lastly, no buildings in the first period show the defects of which Mr. Pugin complains; and neither in the lives of the architects, nor in their works, do we find any evidence of that struggle between the architect and his employer, which he so pathetically deplores. Few buildings since the Reformation do not bear marks of the struggle on their face, and every architect has repeated his complaint.

These premises having been granted, either in whole or in part, it appears to me that they stand to each other in the relation of cause and effect.

To make this more plain, let us try an example. Mr. Pugin complains that in one instance his buttresses were so attenuated as to be ridiculous: this often happens now-a-days, never when Gothic had a true style,—and the reason is obvious. When using a stone roof, or a wooden one composed of immense masses of badly arranged timber, a buttress was requisite to resist the thrust, and being always exactly proportioned to the thrust to be resisted, was always appropriate and beautiful, and no employer could object to what was indispensable. The improvements in carpentry in the present age are such that we can construct roofs of twice the span used in churches, and rest them securely on walls without buttresses, and do so every day. All the world knows this, and know, therefore, that they are mere useless adjuncts; and more than this, all the world do not believe them beautiful.

The same is true of pinnacles; it was found

necessary to weight walls to enable them to resist thrusts, and because they were necessary they were used and made as ornamental as possible; they are now expensive shams, and therefore objected to.

Mr. Pugin objects to thin walls. It is certain they were not much used in the Middle Ages, because skilled labour was rare; unskilled labour abounded, and it was cheaper to erect a thick mass of rude masonry than a more perfect one of less dimensions. A thick wall is, however, far from being a beauty in the abstract, and certainly is not a convenience. A perfect wall will, I believe, always be found to be one exactly proportioned to the work it has to do, and the durability it is wished to attain; so at least they thought in the Middle Ages, and people now naturally object to the expense of walls thicker than are wanted, merely because a rude people could not build thinner ones.

Arches of brick plastered are, of course, very great abominations; but why use them at all? The question is here the same as before; owing to the thickness of their walls, and the weight of their roofs, our forefathers did not believe brick would suffice to bear them,—so they always used stone in their situation. We know better, and can easily construct brick arches to support our lighter walls and roofs; and the common sense of the world, in consequence, rejects the more expensive material; and so they would have done in the Middle Ages, and did on the shores of the Baltic, and in the valley of the Po; and so architects would do now, if they either knew their own interests, or those of their employers.

But it is needless to multiply examples; let us try and state the question another way. It is proposed to erect a building, say a parish church, to accommodate a certain congregation. This can be done in a common-sense modern edifice, with a sufficient amount of ornament and character, for say 5,000*l*. No, say all the ecclesiologists, archaeologists, and amateurs of mediæval antiquities, this can never do; and the architect is made to ask 5,000*l*. more, to put the church into a mediæval dress,—in other words, to crowd the floor with pillars, which prevent people from seeing and hearing,—to abolish galleries, which accommodate crowds at a small expense; to deepen the chancel, so that the clergyman's voice cannot be heard, &c. &c. All this people might not object to, because it is fashionable; but when the *argumentum ad pecuniam* comes in aid of common sense, then commences the struggle, and the congregation naturally say,—if we must masquerade, let us at all events do so at the least possible expense; then comes the docking of pinnacles, the attenuation of walls and buttresses, the plastering of arches, and all those heresies so much deplored; and, if I am not very much mistaken, they always will result when a sham, not truth, is attempted.

The above is as true if applied to Grecian as to Gothic architecture. If an architect gets a commission for a Grecian Doric church, his first idea is a Parthenon: glorious dream! The side colonnades, however, soon vanish; but he may venture to propose a portico in rear as well as in front; but even that is not tolerated: perhaps two or four three-quarter columns? No. Then the inner range of the front portico? No: that too must disappear; so must also the more extensive adjuncts and ornaments; and he is left with a skeleton, of which both he and the public are ashamed. The truth is, the architect wants as many columns as he can get; the public as few as possible, because they are useless, expensive, and inconvenient. Every argument of common sense is against them—"hinc ille lachryma"—the struggle between archaeology and common sense commences. In nine cases out of ten the former is beaten.

It is not, however, that the public are more niggardly than they were. They never, so far as I can observe, object to pay for what they want, when they are satisfied they are getting full value for their money: but they do object to pay for what they do not want, and will not spend their money in what is not only useless but inconvenient.

Mr. Pugin seems to think that when the public are better informed in matters of art, this state of things will end. The conclusion I have arrived at is diametrically opposed to this; my belief being that as soon as the

public are informed as to the processes by which these ancient buildings were erected, they will insist on architects repeating them, if only for an experiment, to try if what is true in everything else may not be true in architecture, that like causes produce like effects. Up to this time no information on the subject has been published, but once the public are as familiar with the modes in which Gothic buildings were produced as they are with the forms, I am very much mistaken if they do not adopt the spirit, and reject the form; and the moment they do, there is an end of all Gothic or pagan reproduction. Architecture will resume her progressive and creative course, and servile copying and retrocession become impossible.

J. F.

#### ON THE MAUSOLEUM OF HADRIAN, NOW THE FORT ST. ANGELO, AT ROME.\*

It is remarkable how much knowledge of the habits, occupations, and even religion of an ancient people may be gained from the kind of edifices their architects were called to construct. So much is this the case, that, if the pages of history were all blotted out, the dumb monuments, which time has spared, would speak to us of the recreations, the morals, the mode of life, and even the mode of death adopted by the ancient Greeks and Romans. In no age has the architect the choice of the buildings he would erect. His business is to give shape and proportion to the edifices which the climate, the habits, the religion, or the popular pursuits of a people demand. The buildings of ancient Rome, which afforded the most ample scope for architectural skill, would not be required, for instance, in our metropolis. The buildings, which give scope for the architects' skill, the porticoes, theatres, baths, are lost to our time and climate.

It is with special reference to sepulchral monuments that I have introduced these preliminary remarks. These afforded a field for the architect of classic times, which in our day has been entirely transferred to the stone-mason. The pyramids in Egypt, the monument of Philopappus at Athens, and the sepulchres of Augustus and Hadrian at Rome, were among the most conspicuous edifices of their respective countries and ages. But where now should we find a tomb in our public cemeteries or graveyards which would require any skill to construct, beyond what might be found in a very moderate artist. I speak not of the monuments of our great men, the art of sculpture has touched, and which stand under the shelter of a cathedral vault—*admittance, 6*d*.; children, half-price*. Speaking, as I intend to do, of sepulchral monuments as buildings, I have yet to ascertain the cause why this class of edifice has been lost to the modern architect. The cause is in the change which Christianity has wrought in the hopes and prospects of what may happen after death. The ancients considered a tomb in a much more important light than we either can or ought to do. So feeble were their expectations of living in their fancied Elysium, that they generally looked forward to the honour of a tomb, as the only blessing that awaited them. Hence the anxiety so frequently discovered on monumental buildings, which the individual, during lifetime, had erected for providing for himself and his family a place of burial free from intrusion. The initials—H. S. F. V., *Hoc sibi fecit vivus*, "He made this for himself while he was alive"—we constantly find on ancient tombs. And we cannot wonder that the wealthy, under these circumstances, should have bestowed so much of their substance in erecting their private monuments, and the warrior and the statesman so much care and toil in gaining this as a public honour.

The ancient Romans erected their splendid tombs by the sides of the public roads; and from the remains still existing along the Via Appia, that road might, without any further indications, be traced for at least 4 miles from Rome.

The early sepulchres of the Republic at Rome were of that kind called Hypogææ, that is, chambers underground, with an elevation little more than enough to exhibit the inscription.

\* Read at a meeting of the Architects' Institute, 4th March.

\* Mr. Ewart has given notice that, after Easter, he shall move an address to her Majesty, praying that she may be pleased to take into consideration the expediency of causing our cathedrals and churches to be generally open (so far as is practicable) throughout the day, with a view to encourage the practice of private devotion therein, especially for the benefit of the poorer classes of the community.



tion to the passers by. Such was the sepulchre of the Scipios, as it is yet to be seen near the Porta St. Sebastiano. But towards the end of the Republic, when the luxury of marble began to be known, and governors of provinces returned home laden with the spoils of the east, the colossal taste in sepulchral monuments was introduced. The rich Crassus erected a mausoleum for his wife on the Via Appia, built of travertine stone, 24 feet thick; and every one who has visited the Campagna of Rome, will be familiar with the striking monument of Cecilia Metella. Forsyth observes, "the general form of the tombs on the Appian Way is a cylinder or a truncated cone with a cubic base and a convex top. This combination," he says, "conveys the idea of a funeral pyre, and has some tendency to the pyramid, the figure most appropriate to a tomb, as representing the earth heaped on a grave, or the stone piled on a military barrow." Perhaps Crassus was the first who broke through this general rule, when he gave more rotundity to his wife's monument. Caius Cestius went back to the pyramid, and these two monuments, which we may consider as belonging to the Republic, have now stood for nearly 2,000 years, and there seems no reason why they should not stand for 2,000 more.

But I come now to the two great sepulchres of Imperial Rome. Augustus chose for the site of his mausoleum a place in the Campus Martius, between the Via Flaminia and the Tyber. The remains of that monument are now to be seen behind the Palazzo Corea, near the Porto di Ripetta. The ancient walls are so concealed or involved with the surrounding buildings that its magnitude can hardly be estimated by the spectator. Strabo has given us some description of it, and he considered it the object most worthy of notice among the splendid edifices of the Campus Martius. It stood upon a lofty substruction of white stone, near the bank of the river, and it was shaded to the very top with evergreen trees. The summit was crowned by the statue of Augustus in bronze: the trees appear to have been planted on the belts of the stories, as the circumference contracted towards the top. Behind the mausoleum there was a grove laid out in walks, the care of which was committed to a procurator. The tomb was built twenty-seven years before the Christian era, and it is probable that the boy Marcellus was the first of the imperial family interred within its walls.

que, Tyberine, videbis

Funera, cum tamulum præterlabere recentem!

It was in this tomb that Agrippa and Drusus were buried. And in the nineteenth year of the Christian era, Agrippina, in the midst of weeping crowds of citizens, brought the ashes of Germanicus to be placed within its walls. But the monument, which was designed by the first master of the Roman world to be the silent repository of the ashes of himself and his posterity, has come to an ignoble end. The ruins, which time and Robert Guiscard the Norman have left, are now consolidated into the platform of an amphitheatre; and in the summer months, several thousands of the Roman people sit round the ample circumference, to witness the horrors of a bull-fight, the feats of horsemanship, and the antics of a vagrant clown.

As if it were to show how little any works, however great, are valued, which have not some public object or utility, the colossal monument of Hadrian, which we are about to view, is hardly noticed by the ancient writers. But there is little doubt that the Emperor Hadrian himself was the architect of his own tomb: the whole of his life was dedicated to the arts, and he could ill brook a rival in the science on which he thought he excelled. Apollodorus, the great architect of that day, the man of taste, was doomed to view all the designs the Emperor sent to him, and to choose between praising what he could not admire, or going into exile. Apollodorus ended in the latter alternative, and left the imperial architect to construct his own mausoleum. Dion Cassius tells us, that when Hadrian was buried in the tomb he built on the bank of the Tyber, that of Augustus was full, and no more ashes could be deposited within it. But I apprehend that Hadrian had cast an envious eye upon the

great work of his predecessor, and perhaps chosen the garden of Domitia, nearly opposite, to confront with greater splendour the monument which Strabo had praised. The rich materials he had probably collected in his travels through the empire, and, I imagine, like those who built a still larger tower in the plains of Shinar, the vain notion of his mind might be expressed in the same language—"Come let us make us a name." Be this as it may, all that Spartan, the biographer of Hadrian, tells us about this stupendous work is, "Fecit et sui nominis pontem et sepulchrum juxta Tyberim." The bridge here mentioned is that which Hadrian erected across the Tyber to give an easy access to his tomb, and which he called Pons Elius, after his prenom. There is a medal extant, which exhibits this bridge with three main arches in the middle, and at each end two of smaller dimensions. Much of the ancient construction of peperine stone still remains in the vaults of the arches, and with the name changed to Ponte S. Angelo, it preserves to this day the appearance of what it was originally.

It appears from various inscriptions that have been found and preserved, that this mausoleum received the ashes of all the Antonines; and the body of Commodus, after being dragged through the Tyber, was also buried in it by order of Pertinax. Something was left by Hadrian for his successors to finish, and it probably continued to be the imperial place of burial until the time of Septimius Severus; perhaps we may say until the middle of the third century. Then its history as a sepulchre ends. But, before I proceed to describe to you the original appearance and splendour of this monument of imperial Rome, let me bring together the few notices which are found of it in ancient writers. Procopius is the first who gives any description of what it was: in his account of an assault made by the Goths outside the Aurelian gate (it is not far from where the Gauls of 1848 very recently made their assault), he thus writes:—"The tomb of the Emperor Hadrian is situated outside the Porta Aurelia, about a stone's cast from the bulwarks of the city; it is an object worthy of admiration. It is built of Parian marble, and the blocks fit close to one another without any thing between to fasten them; it has four equal sides about a stone's throw in length; it rises above the city walls; on the top are statues of the same kind of marble, admirable figures of men and horses. The men of old time (that is the Romans, probably in the time of Honorius), joined this monument with the bulwarks of the city by two walls, because it appeared to be advantageous for the defence of the city; it thus became a part of the fortifications, and had the appearance of a lofty tower covering the entrance of the city." So far we learn that the mausoleum was converted at a very early period (for Procopius saw it in 534 A.D.) into a fortress. Those beautiful statues, however, which the secretary of Belisarius describes, were put to a strange use by the defenders of Rome. Instead of more appropriate missiles and more raw material, these master pieces of sculpture were torn from their pedestals and hurled upon the besiegers below; and perhaps the breaking of the head of a Goth might cost a whole Venus or a Mars, a head of a Faun, or a foot of Hercules. I do not know what to say of a passage cited by Salmasius from John of Antioch, who lived A.D. 620. "The figure of Hadrian," he says, "stood on the top in a car drawn by four horses, of such colossal dimensions, that a full grown man might pass through one of the horse's eyes." A chronicler of the thirteenth century, commonly called the anonymous, says that the tomb was faced with marble, and he talks of gilded peacocks and a bull. The same medieval sight-seer mentions also bronze doors and horses, which he saw about the mausoleum. But the earliest representation or drawing we have of the Mole is that now existing on the bronze doors of St. Peter's, made in the days of Pope Eugenius, by Antonio Pollagio, about 1481. In Camucci's sketch, made a century later, some of the cornice is indicated, which he must have seen, and which he says was embellished with ox heads and festoons; and on the frieze there were two inscriptions then to be seen belonging to Commodus and Lucius Verus. Pope

Clement VII. and his architect Labacco gave currency to the tradition, that the beautiful columns of Paonazzetto, which stood in St. Paul's Basilica, once adorned the upper stories of this mausoleum. Now with these notices of historians and artists of old time, added to our own observations of its present state, we are to make the description, both external and internal, of this durable monument.\*

RICHARD BURGESS, B.D.

## TUBULAR GIRDER BRIDGES.

INSTITUTION OF CIVIL ENGINEERS.

ON the 12th, the president in the chair, a paper was read, "On Tubular Girder Bridges," by Mr. Wm. Fairbairn. The author commenced by stating, that the chief points to be taken into consideration were—1st, the application of a given formula, for computing their strength; 2nd, the excess of strength that should be given, over the greatest load that could be brought upon the bridge; and, 3rd, the effects of impact, with the best mode of testing the strength, and proving the security of the bridge.

In the first place, it had been determined by experiments, that, in order to balance the two resisting forces of tension and compression, in a wrought-iron tubular girder, having a cellular top, the sectional area of the bottom should be to the sectional area of the top, as eleven to twelve; and that until this proportion existed, the usual formula could not be applied; this formula was, that the breaking weight was equal to the total area, multiplied into the depth, and into a constant (80), and divided by

the length of the girder. 
$$\left( w = \frac{a d c}{l} \right)$$

Considering the particular case of the Torksey-bridge, the mean sectional areas of the top and the bottom, being respectively 51.08 square inches and 54.93 square inches, the latter was in excess of strength over the former, so that a reduction of the area of the bottom from 54.93 to 46.75 square inches might have been made with propriety, and would have been in conformity with the formula.

By calculation, the ultimate strength of the bridge was found to be 1,152 tons, whilst the greatest total load, including the weight of the girders, &c., was only 372 tons. This gave a strength greater than the heaviest rolling load that could be brought on the bridge, in the proportion of nearly five to one. Although, therefore, the proportion of the girders was not exactly that which the author recommended, he considered that "they were, nevertheless, sufficient to render the bridge perfectly secure." This conclusion was arrived at without taking into consideration the amount of additional strength derived from the continuity of the girders across the central pier.

The exact proportions recommended were given in two tables extending respectively to spans of 150 feet and of 300 feet. The depths of the girders of the first class were taken at one-thirteenth of the span, and those of the second class at one-fifteenth of the span.

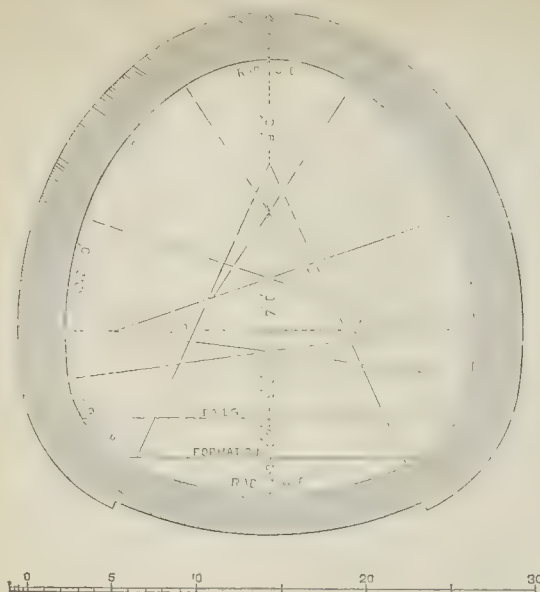
In the discussion which followed the definite proportions assigned in the paper for girders were disputed, and the attempt to assign empirical rules for the practice of engineers, in structures of this novel character, was earnestly deprecated.

PROVINCIAL.—A market house is to be erected at Cinderford, Forest of Dean, cost payable in 20 shares, of 50*l.* each.—The foundation stone of St. Matthias's Church, on the Weir, says the *Bristol Journal*, was laid on Thursday, in last week. It is to be in the Decorated style, with accommodation for 842 sitters, 634 free, and all with open seats. The architect is Mr. John Norton, and the builders are Messrs. Wilcox and Sons, who have contracted to erect the edifice in eighteen months.—Mr. Macbride, the sculptor, says a Liverpool paper, is engaged on a historical group from British history, to be executed in marble, for the International Exposition.—A number of Mr. Ebenezer Elliott's admirers have expressed a desire that a monument should be erected to his memory in or near Sheffield.—Resolutions have been passed by the Knaresborough Improvement Act Commissioners, for carrying out a complete plan of drainage in that town. A committee visited Ripon, to pick up a few hints, as the neatness, cleanliness, and healthfulness of that town has been with good reason attributed to the completeness of its drainage; not a single case of cholera occurred in that town.

\* To be continued.



## SECTION OF COPENHAGEN TUNNEL.



## COPENHAGEN TUNNEL.

THE section of this tunnel will be useful to the student, as showing a series of curves throughout. The bricks are set as headers in the invert and sides; and in stretchers, or  $\frac{1}{2}$  inch rings in the smaller curves. Great strength is thought to be obtained by this form, and skew backs are dispensed with. In no portion of the section do the bricks require cutting. The thickness of the brickwork is 2 ft. 7 in., excepting the bottom, which is 2 ft. 3 in.

"Cement" is not used in this work, but mortar, made as here described:—

MORTAR.	
Blue lias lime .....	5 parts.
Burnt clay or brick rubbish, ground .....	2 "
Clean sharp sand .....	2 "
Coke ashes .....	1 "
	10

Mixed by measure. The mortar is ground in a pan which revolves under two edge rollers, about 5 feet diameter, and one ton weight each. The pan is driven by steam power.

Messrs. W. and J. Cubitt are the engineers. The contractors are Messrs. Pearce and Smith.

Good mortar is of the utmost importance to the engineer, the architect, and the builder; and a knowledge of the ingredients necessary to compose such will be acceptable to all who wish to construct works of use and permanence. The Romans paid strict attention to the character of the mortar they used; in many instances the strength of their military walls depended entirely upon the strength of the mortar, as there was no bond in the arrangement of the stone. Such was the case in the great wall from Newcastle to Carlisle. Such in a great measure is the character of the masonry of the Liverpool Docks, as now, and for some time past, constructed by Mr. Jesse Hartley, the engineer. The cement called "Roman," was not known to the great builders of that building nation. In the vast dock works at Liverpool, it has not been used, and if good mortar is made and used with proper attention and care, cement of any other kind, as known by the name of "cement," will rarely be required. A mortar which sets gradually but surely, is in every respect to be preferred to a quick-setting and rigid cement. The young engineer or architect must not, however, sit down in idleness and draw up a

specification from this, or any other recipe, but carefully analyze his materials, if new, and try by experiment, so as to make certain of adopting the best. There is a wide difference in the character and quantity of lime. The ingredients to combine, and mode of mixing, must be varied to suit each.

## PROGRESS IN ARCHITECTURE.

ARCHITECTURE is both a science and an art. It may advance with rapidity in its first capacity, and yet remain stationary or even retrograde, and that without observation, in the second; and thus its health, nay, its life, as an art, may expire, till it sink into a mere craft of building, notwithstanding that the means at its command are far beyond those of any former age. Since the discoveries of the chemist and geologist have been added to its service, the extensive application of iron and the power of steam have increased its resources. And the enterprize of commerce and the present facilities of communication with other countries bring such materials within its reach, as formerly were unprocureable.

As an art, architecture is less imitative and more creative than either painting or sculpture; the materials with which it has to deal are too rugged and unyielding to allow of direct imitation; it thus becomes essentially conventional; it works rather with the principles than with the forms of nature; the type of ornament which it has thence chosen must be engrafted upon, and be developed together with, and not conceal, the idea of the stability of its framework; its means of expression also are more limited than those of its sister arts. *Material abstract beauty or sublimity* is its principal scope, and that a wide, noble, and sufficient one, for the limits of its power have not yet been reached by man, nor need it be feared that they will be. *Architecture*, then, in the first instance, may err and has erred from its character as an art, having been subordinated to that of science; for, connected as it is with several lucrative adjuncts, it is seldom embraced, like painting and sculpture, from an ardent love alone, but is coldly and calculatingly entered upon as a respectable profession and lucrative business, and therefore may, indeed, be kept in a respectable grade of dull mediocrity, but can never be raised to its pro-

per position—at the summit of the arts, till it be undertaken with a nobler intention than to make it pay.

Architecture also may err and has erred inasmuch as association and prejudice have fettered it with the arbitrary laws of antiquarianism in its search after abstract beauty and sublimity. Such a catalogue of examples have been deduced from the works of the ancient masters, and fitted together, as a puzzle by a child, into a system that these masters themselves never dreamt of, to which it is attempted to bind us by an exact compliance, compelling a mere reproduction of their facts, and debarring us from venturing to the same source whence they drew, lest we might do aught for which we had not their authority, and thus would each work executed be the diminishing the range of invention, the rivetting another link to the chain, confining our liberty, instead of the adding of man's thought to thought,—the widening the sphere of our knowledge,—which knowledge is power, and given to us for further use, that having learnt how the great masters have applied those types chosen from the exhaustless stores of nature, we may likewise apply others for ourselves.

It now, however, appears to be generally acknowledged that we have a record of our own to leave, a transcript of the feelings of the age to embody in our works, and that, therefore, we should strive after more than a mere reproduction of those of past ages, and that we might effect more than has yet been done.

The question, then, by what means are we again to reach the true path of progress? is to us of the utmost practical importance, and is one that is occupying considerable attention. Nor has this question been raised without any attempts having been made to answer it; several suggestions have been offered for its solution.

It will be well, therefore, to take a brief review of the direction this movement has already taken, to endeavour to ascertain the position in which we are at present, to test the application of these suggestions to that position.

And, first, several voices have been raised in condemnation of our practice of following by turns Egyptian, Greek, Roman, or Goth, as fashion might sway, and warning us of the maze of error in which we were wandering without hope of freedom, bidding us to halt in our mad career, denouncing the false system of copyism, and, though, indeed, they pointed not out the right path, strove to lead us from the wrong one,—impugned the all-enervating authority of antiquity, and put aside the distorting medium of association,—bid us to think for ourselves, and not to pierce the thoughts of our fathers,—which first rent the veil of black darkness that overshadowed us, and rang the death-knell to the practice of a century. This, however, alone, would help us but little on our way, unsupported; it could only unsettle the mind for a time, till, disheartened by the knowledge of failure, we should relapse into a more hopeless state than before.

But further and next were we directed to the study of nature, and though to some this advice appeared, and even now appears, vague and unprecise, and from its want of precision was even rejected by others, it contains all the germs of truth; for as the children of nature, it reminded us of our mission as her disciples and expounders, for man has no other source of inspiration open to him, nor any other school wherein he can learn equal power or grace and refinement. This, then, was a beacon light held up, which flashed astonishment to those who trusted to the glimmerings of their own unaided inventions, that dreamt not of a brighter source than the reflected rays of a past and borrowed inspiration, and though in the panic of the moment this transferring of our allegiance from the tyranny of antiquarianism to the principles of nature, was stigmatized as presumption; truly there was more of presumption in the setting up of man and man's rules in her stead.

Nor is it to architecture alone that this salutary movement has been confined. There is in the other arts at the present day, an evident attempt after a careful and simple study of nature, the ground-work of all excellence.

Yet though this be a great step in advance, it is not sufficient for our purpose; for, as it has been observed, while painting and sculp-



ture are imitative arts, for which a faithful rendering of the works of nature suffice: architecture deals more with her principles than her individual forms, and needs, therefore, to be shown how to deduce these principles, and further to learn how to apply them to her conventional purposes.

Thus in designing ornament, the province of the architect is to seize such salient points as may suggest the characteristic form of the natural type, without carrying the imitation so far as to destroy the idea of the material on which it is represented, or destroying its breadth of light and shade, necessary as the portion of a great whole, rather than an object perfect in itself.

Towards the right comprehension of these principles, the next step in advance, much that is practically useful has been contributed by Mr. Ruskin, on their application to art in general, in his treatise on the imaginative and theoretic faculties, as well as on their application to architecture in the "Seven Lamps," the brilliancy of which, however, vanishes sadly into gloom when he approaches the point under consideration, in the "Lamp of Obedience," where he forbids us all hope of progress till we can again merge the profession into a band of Freemasons, and "teach our architecture at our schools, from Cornwall to Northumberland, as we would teach English spelling or English grammar,"—where he proclaims that "until a universal system of form and workmanship be everywhere adopted and enforced, our architecture will languish in the dust,"—"that the only chance for architecture rests on the bare possibility of obtaining the consent of architects and the public, to choose a style and use it universally;" which opinion is also supported by Mr. Fergusson, who tells us that a gradual national improvement of some style universally chosen and practised, will alone effect progress in art, by the same means as facts are accumulated in physical science, from which he traces the arts in regular gradation, and would thence conclude that the same causes influence the whole series, and would therefore discourage the idea of individual improvement, and prohibit any from practising otherwise than on the general design, which alone they might add to, improve, or correct when in error.

These views are plausible in theory, but, as regards practice, utterly impossible. The scheme is opposed to the spirit of the time; for the days of feudalism and monastic compulsion are past. Architects are no longer an order of priests. The very numbers in the profession preclude a hope that they could, even if they would, submit to such a thralldom. Nor would the public remain satisfied with the monotony that must ensue. Mr. Ruskin himself fears its impossibility, but asserts that with that he has nothing to do. Yet indeed we have something to do with its possibility, for the present is one phase in the general development of society—one page of the history of its progress, to which the world has not arrived by chance. To deny to it the possibility of progress, is to assert that Providence is at fault, which is an anomaly: we may be sure that we can never be placed in a position where our duty should be impossible.

Nor, as has been before explained, need the parallel between physical science and architecture necessarily hold good. Under certain peculiar circumstances it has done so at some former period, which has given Mr. Fergusson the pretext for his argument. But in each case these circumstances were different from those of modern times, and impossible to be revived. As in the states of Greece, whose principal architectural structures were temples, each like the preceding, with such refinements only as experience might suggest, with no other variation for centuries; or in the mediæval ages, under an ecclesiastical monopoly, to which all learning and literature, as well as architecture, was confined, by whose members alone any sacred structure could be built. Then there is at least an equal precedent, not taken into this account, on the opposite side, under circumstances far more similar to our own; for neither Brunelleschi, Alberti, San Gallo, Palladio, Vignola, nor the other illustrious architects of Italy, were members of a band of Freemasons, but studied as we do now, and worked as we might do now, individually producing works of undeniably high merit,

stamped with their own individuality, and yet conforming to the manners and feelings of the age; and, further, have we bright examples among our own countrymen, Wren, Vanbrugh, Inigo Jones, Sir Wm. Chambers, &c., to whom, as members of no clique, nor yet having learnt their architecture as their spelling, hope of progress might as reasonably have been denied as to us.

But other methods have been suggested besides these for the renovation of our art. We have been told that the mediæval architects worked out their glorious styles from the precepts of Vitruvius, and thought their result the same which he had intended, and we have been advised to follow the same course. It must, however, be acknowledged, that if they did think so, they made a great mistake, though a fortunate one perhaps. It is equally certain that we should make as great a mistake. But the chances of its being so fortunate are ten thousand to one.

Others imagine they have discovered the traces of a system of geometry, by which they produced their works. Now it is probable they did so, and it is certain that geometrical science is most useful to architecture; yet I fear, that if we wait till we can have fitted together its scanty relics, it will be for us at least so late, that when we have found the route we intend to pursue, we shall then be tempted to say with Sir Joshua Reynolds—"were I now to begin again, I would pursue such a course."

All these suggestions seem to take it for granted, that the formation of a universal style on the model of those of past ages, is the grand consideration. It may be, that one or other of these methods is the only one by which such could be produced. But then it is not necessary that such a style should be established in order that architecture may progress. We look not that our painters should give precisely the same features, the same attitudes to their figures, the same composition or tone of colour to their pictures. The day has passed when the works of a nation should be reckoned in the aggregate, and their growth described as regularly as that of a vegetable.

We want neither a new nor a universal style: we should know nothing about styles; the very name is a bane and a hindrance to architects, however useful to the antiquary. Let us leave it to posterity to classify our productions, and be sure that if we work simply, neither copying nor striving for singularity, we cannot so completely emancipate ourselves from the feelings of our own age and country but that they will give an impress to our work, though we may not discern it for ourselves. We shall at least work that which shall have the appearance of life; and rudely, it may be, yet surely, pierce to the sympathies of men. Let us, then, shun plagiarism as a stain on the reputation of the architect, as it would be in literature; and then all beauty is common. Columnar architecture, and delicacy of moulding, and precision of symmetry are not the inalienable property of the Greek, though his several and peculiar orders are. Lofty proportion, vigorous light and shade, fairy tracery, fretted vaulting, are not a Gothic patent, though each of their cathedrals, with all its crisp foliage, and quaint imagery or curious penetrations, and various details, left to us throughout the length and breadth of the land as a record of the labour and zeal and love of their builders, is a *sign manual*, which it is *forgery* for us to repeat. The well whence they drew is open to us, and we may do more and better than they, since they have shown us how, and we have not all that lesson to learn for ourselves.

The remedies, therefore, that have been proposed are too violent for our case. Yet though we cannot compel such a unity of practice throughout the profession, we may and must expect, if we are to look for progress, a far greater degree of consistency in that of its individual members than there is at present, for one thought fully carried out is sufficient for a man's life, nay, is a legacy he may be proud to bequeath. If, then, in pandering to the appetite for novelty, no two designs of an architect are to resemble each other, there is no help for him but to continue copying the works of others, without resting to perfect one idea of his own: the lamp of obedience is a noble one, and necessary to rescue us from restless

agitation for novelty, which is as injurious as the opposite extreme. All progress must be founded on what has been done before. Whatever precedent then a man selects, let him keep to that, improving thereon to his utmost, nor be driven from his post by the withering storms of criticism, which are too certain to arise whenever anything that has not previous authority is attempted.

It is then upon our own individual improvement and consistency we must depend for progress. There is little practical use in seeking for new theories for the development of architecture, for the present system is sufficient for our purpose; it is reform, not revolution, we require,—a higher aim and a recognition of the dignity of our art,—a closer study of the forms of nature, by drawing the human figure and natural objects, as an important branch of our education (one, however, seldom considered), by which the taste would become refined, and such a feeling for beauty given as would not desert us throughout the sterner studies of the science,—a due comprehension of the principles of architecture derived from nature, of which proportion and symmetry form the foundation,—and, further, in practice and in criticism, the exercise of common sense; for much evil has arisen from treating architecture as if amenable to some other peculiar laws. How often do we hear persons refuse to judge of a building by the same tests they would apply to other things, on the grounds that if it do not please them, it may yet be in the style, as if style were an excuse for ugliness, a species of juggling known only to the initiated! As in literature, it is not well to mince and pick and choose our words, and cavil about the rounding of a sentence, lest to such minor points we sacrifice the point and pith of the argument, and as we should rather seek to write with terseness and energy what we have to say, and look to the matter and not to the manner,—so in architecture, let us not worry ourselves to be original, nor strive to be peculiar. "Genius," says Emerson, "leaves to novices the gay, the fantastic, and ostentatious, and itself pierces directly to the simple and true." "Nothing astonishes man so much as common sense and plain dealing."—JOHN P. SEDDON.

#### THE BUILDING, &c., FOR THE EXHIBITION OF ALL NATIONS.

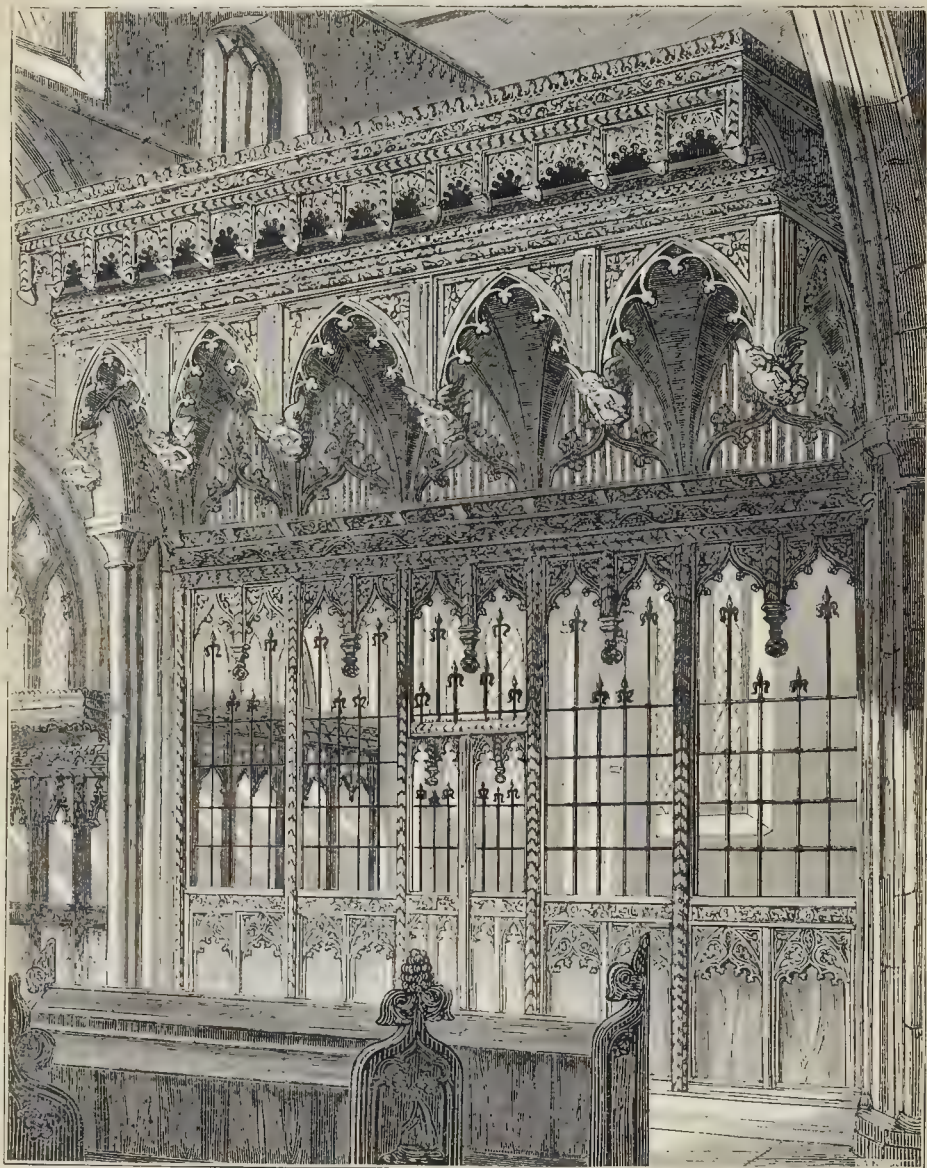
THE committee having come to know that many contributors of suggestions for the building are preparing complete sets of working drawings, wish us to call particular attention to that part of their former statement in which they ask for *suggestions only* as to the general management of the ground-plan, and request contributors not at present to enter into details of construction or architectural decorations.

After the general arrangement of the building has been determined by the aid of the plans and suggestions now called for, it is the intention of the commissioners to invite, by a *second public notice*, designs, accompanied by tenders, from architects, builders, and manufacturers, for the construction of the buildings, of the form and according to the general arrangement which shall have been thus fixed upon by the commissioners.

At a meeting held at Huddersfield last week, to give the operative classes an opportunity of expressing their sentiments on the projected exhibition, a mechanic, who stated that he had invented a valuable machine, but could not protect it by patent for lack of the necessary funds, started the question, whether the exhibition of an unpatented invention at the Industrial Exhibition of 1851 would be deemed a publication. He said that many who were in his position would be glad to exhibit, if they were protected from the consequences ordinarily following a publication; and he suggested that some special provision should be made in this case: his views met with the general approbation of the persons assembled.—A public meeting will be held in Kensington on the 20th inst. A strong committee has been organized there, and will doubtless render good service to the cause.—In London city, they expect to raise about 30,000*l.* The corporation gave 500*l.* A ladies' committee has been appointed there to promote the object.



ROOD SCREEN, SEFTON CHURCH, LANCASHIRE.



ROOD SCREEN, SEFTON CHURCH.

THE village of Sefton, in Lancashire, is about eight miles from Liverpool, a little to the left of the high road to Ormskirk: it is situated on an extensive range of fine flat meadows, that reach almost to the sea, and which are annually irrigated by the Alt, a small trout stream. It is a parish and manor, and formerly belonged to the Molineuxs, who possessed it from their Norman ancestor, William de Molines. It was granted to him by Roger de Poitiers, to whom the Conqueror had given all the lands between the Ribble and the Mersey. Previous to that event this manor was held by five Thanes.

The church, which is dedicated to St. Helen, is said to have been erected in the time of Henry VIII., by Anthony Molineux, rector of the place; but a part of it has evidently been

built at an earlier period, from the various styles of the windows, and the unconnected manner in which the walls are jointed, particularly on the north side: there are also two effigies of knights templars, branches of this family, one of which in the present state of the church does not appear to have a proper situation; and on the stalls, screens, &c., there is a repetition of the initials I.M., which must allude to some other member of the family.

The chancel is divided by a screen from the body of the church, and contains stalls arranged alphabetically; the style of the letters is unique, being in unison with the general character of the ornaments, and is perhaps the most complete specimen of the kind extant. They are represented in the twenty-fourth plate of Bridgen's work on Sefton Church. In the chancel and chancel aisles, for a series of ages, have been deposited the remains of the Moli-

neux family; and several of the monumental memorials of the illustrious house are still preserved. Around an altar tomb is an inscription in memory of Sir Richard Molineux and Joan his wife, who died in 1439; there are effigies in brass of Sir William Molineux and his two wives and thirteen children; also of Sir William, son of the above, his two wives and six children. Four of the plates are lost. The one bearing the inscription is preserved, of which the following is a translation:—"Sir William Molineux, Knight, lord of the manor of Sefton, who was sent three times against the Scots by Henry VIII. of England: in war he fought most courageously, and at Flodden, with his own hands, took two of the Scottish banners in spite of all their resistance: in peace he was the friend of all mankind, assisting with his counsel those who wanted advice, and with his purse those who wanted money;



he had two wives,—the first, Jane, only daughter and heiress of Sir Richard Rugge, Knight, of the county of Salop, by whom he had three children, Richard, Jane, and Anne; the second, Elizabeth, daughter and heiress of Cuthbert Clifton, Esq., by whom he had also three children, William, Thomas, and Ann: after a life of 65 years he was laid here with his ancestors in July, 1548, in the hope of the Resurrection."

In the painted glass of the windows are several inscriptions,—one to A. Molineux, dated 1542,—another to Margarete Bulkeley, daughter of Sir Richard Molineux, dated 1543. In this church also are deposited the remains of the family of the Blundells of Ince-Blundell, a name well known to the lovers of the fine arts.

Our plate of the chancel screen represents it in its perfect state, before the alterations in the year 1818 were made. R.

#### STATE OF ART IN NORWAY. CHURCHES AND SPOONS.

THE accompanying engravings exhibit, by a strange contrast, the peculiar state of art in Norway. The inhabitants of almost all civilized countries have succeeded, by untiring mental energies and ample contribution of funds, in rendering their religious edifices objects of architectural beauty, but such, it seems, is not the case with the Norwegians, who, although rigid observers of the laws of their religion, and most generally attached to their church with more than ordinary sentiments of love and veneration, fail in the demonstration of that universal evidence of religious zeal that demands the exercise of an art so closely allied, by its study and associations, to the worship of our Creator, Preserver, and Benefactor. This is the more remarkable, in the absence of almost all dissent from the established church, as well as the existence of an intuitive love of art, although uttered sparingly, in ill-judged application, to the entrances of a few churches and domestic buildings, and the chaste and appropriate ornamentation of house furniture and utensils.

The churches of Norway are characterized as much by their resemblance of each other, as the primitiveness of their construction and the penthouse peculiarity of their appearance. The first engraving is a view of Ringebo Church, situated about midway up the picturesque valley of Gulbrandsdall, and is an average specimen of the style of Norwegian churches. The lych gate, though not introduced in this view, is almost everywhere seen in the boundary of the churchyards, and the belfry is, as usually made, a detached building, on the left in the engraving: on the right is situated the parsonage-house.

The decoration of the church entrances consists of planks carved on the face, in designs of much elegance and masterly execution, varying in length and breadth with their corresponding parts (neither of which form part of the constructive material), and altogether conceived, executed, and appropriated without reference to that consideration of usefulness which alone gives legitimacy to the presence of architectural decoration. It would be difficult to commit the same error in embellishing house furniture and utensils, for these are articles of frequent manual use, and all that would be incongruous in their form would be abandoned by admonitions from the most primitive mind; and hence we find in the examples, figs. 2 and 3, specimens of art, in which the combination of usefulness with embellishment is productive of harmony, and illustrative of the principles of true art.

The houses of the rich, and equally so those of the poor, are stored with these beautiful examples of wood carving, less excellent in design and execution than the like productions of no other country. It must therefore be remarked, that whilst Norwegian art suffers materially from the want of well organized institutions for its study and cultivation, nature has formed the taste in all classes of society from the monarch to the peasant, in the sources of wealth and necessity, in the seclusion of mountain habitations, as well as those of populous towns and villages, for that equitable balance of subject, happy contrast of surface, and

#### RINGEBO KIRKE, NORWAY.



#### NORWEGIAN SPOON HANDLES.



FIG. 2.



FIG. 3.

harmonious combination of lines, the union of which mark the excellence of artistic decoration.

The specimens of design and execution illustrated (of alderwood), will amply corroborate that assertion, they being the ideal produce and handicraft of a mountain peasant, and average specimens of their skill.

There are no public buildings or institutions in Norway, exclusive of the churches: and these, as well as the domestic buildings, are erected of wood, with but a few exceptions,—such as the king's new palace at Christiania, and the Cathedral Church of Stikklestad, north of

Drontheim, which, with a few other unimportant exceptions, are of stone. This results first from the peculiar nature of the stone, which is chiefly silicious, of an irregular fracture, and therefore expensive to work; secondly, the scarcity of lime; and, thirdly, the abundance and cheapness of timber.

The mountains are composed chiefly of micaceous schist, which the heavy rains in winter are constantly washing down in broken masses.

Amongst the peculiarities of custom may be mentioned the frequency of carving, on frieze boards or fascia boards (running horizontally round their dwelling houses) the will and tes-



tament of the owner, and being written in characters of quaint design, it has a somewhat pleasing effect.

So much for the material, and use of it, in reference to the practice of an important branch of the fine arts. That of painting may be said to be totally unknown, and yet few countries can more justly boast of its elements of picturesque beauty; the scenery is of that wild, solemn, and impressive character, that, beyond the momentary flush of approbation, arrests the very boundary of thought, and trammels the mind with deep, stirring reflections.

Norwegian valley scenes are nature's most perfect pictures in the accord of lines, harmony of colour, and, beyond all, that minute gradation from the spectre-like forms of the distant mountain caps, to the clear, bright, sunny foreground with its rude and dangerous-like wooden bridge crossing the far sunk mountain torrent in a deep ravine, or from distance held in the play of setting sun, back to the mellowing shade, to the gray mid-distance, to the dark recess of a narrowing valley of rocks, where deep caverns lend their shadows to the universal shade, and where artists love to lead the eye of the beholder by cunning and imperceptible approach, to transfix him with emotion and bind him in contemplation. These subjects may be fairly denominated the noblest features of nature's landscape.

Again, the hospitable character, costume, social habits, and, above all, peaceable condition of the people, affords numerous subjects and opportunity for the enjoyment of this branch of the fine arts, but, strange to say, that whilst music, singing, and dancing are practised with skill, painting and drawing are comparatively unknown; and yet the praises bestowed by them on the artistic works of English tourists in Norway, denotes the bud of veneration for this neglected study. I am happy to say that of late years good taste has prompted a few English artists to direct their steps to this magnificent though neglected country, a better knowledge of its character than by written description being obtained by a peep into their portfolios, particularly that of Mr. West, of Clifton, to whom I am indebted for the view of Ringehol Church. Organized institutions for the study of art are alone wanting to class the Norwegians with others of the present age who are striving so successfully for its revival and improvement, and although in reference to this subject they hold a somewhat anomalous position, yet it must be remembered that they are capable already of works worthy our imitation, their minds are framed for the impressions of art, their country abounds with the requisite material, and the state of their society is genial to its birth and existence.

R. C. S.

#### A SITE FOR THE NATIONAL GALLERY. MARLBOROUGH HOUSE—HAMPTON COURT.

THE lamented demise of the Queen Dowager has given occasion for a multitude of persons to view the interior of her late residence in London, called Marlborough House. This occasion, however mournful, becomes eminently favourable to entertain a project which would relieve very great and acknowledged difficulties in the two most important institutions dedicated to the furtherance of the fine arts.

The numerous visitors to Marlborough House must have become thoroughly acquainted with the considerable area occupied by the entrance, court-yard, stabling, offices, mansion, and garden. They have also seen that the apartments, and the distribution of them, have neither the grandeur nor convenience fitted even for a dual residence, much less for any distinguished branch of royalty. The house has been so long and frequently unoccupied, or tenanted by others than by its noble possessor, that possibly it might be ceded upon conditions which, for many reasons, would be advantageous to the proprietor, and thus become a public property. A most magnificent area and situation would then be obtained, upon which a national gallery might be erected, worthy of the high position of Britain among the civilized nations of the earth, and worthy of a living school of art, which bids fair to take equal rank in excellence with any of the European schools, either of the past or present age.

The wing of the building now occupied by the national pictures in Trafalgar-square could then be given to the Royal Academy. Ample space would thereby be obtained to increase the means of their annual exhibition; the pains and penalties inflicted by rejection for want of room would disappear, and really meritorious works would have a fair chance of meeting the eye of the scrutinizing amateur by a favourable proximity of view. The semicircular apartment at the back of the hall might be opened into the central hall of entrance, and these, with the two lesser halls on each side, perhaps with some of the lower rooms where the unfortunate Vernon pictures are put away, would give situations for display of modern sculpture.

Returning to the site of Marlborough House, it may be suggested that a new National Gallery, if built here, should be on arcades, which, opening to the garden next the park, would make a superb covered promenade that might be stored with architectural remains and examples of ancient sculpture. It appears that the British Museum is already filled to repletion, inasmuch as the Nineveh antiquities are inconveniently crowded in a cellar; besides, the works of our own sculptors deserve national recognition, and to the present moment no project has been elicited, either governmental or otherwise, for securing to our posterity any proofs of our native skill in this difficult and sublime branch of art.

Hitherto the restricted conveniences for hanging pictures in the apartments called a National Gallery in Trafalgar-square, has been constantly urged by the trustees of that institution as a reason for declining purchases in addition, and even for the non-acceptance of gifts or legacies of works of consequence. Although, perhaps, the principle is not of the most refined quality of honour to accept gifts of valuable property, being somewhat akin to suing in *forma pauperis*, or for a high-minded people to become legacy hunters of pictures to fill a more enlarged gallery, yet we possess, without trusting to any such adventitious additions, extensive means of covering the walls of a new gallery with works of the very highest consequence for art-instruction, both to its professors and admirers. The cartoons of Raffaele might be covered with plate glass, and brought to London. At Hampton Court they are absolutely useless, being hung too high for any searching examination; and the tranquillity absolutely necessary to study their intense beauties interfered with by a vulgar crowd, more excited and anxious to view a contested swimming match in the river to catch a live pig, which was weekly instituted last year by the officers of the dragoon regiment quartered there. These gentlemen gave a shrewd estimate how valueless the wondrous cartoons of the divine master were to the majority of the Hampton Court visitors.

Hampton Court contains, also, the admirable friezes by A. Mantegna: these, although painted over by an inferior hand in many parts, would probably disclose their virgin purity if the retouches were removed. There are also some works by Julio Romano, from the palace of Mantua, seldom noticed, but of great value to the student in high art: a magnificent Tintoretto has been lent to the Royal Academy, and now excites the admiration of every one who views it there. Many others might be named, but the ceiling in Whitehall Chapel, by Rubens, cannot be omitted. A dozen years since this series of pictures was taken down, found to be in the most perfect state, and in the master's finest manner. Of what use are these splendid works to the study of grand art, depending on the charms of colour, in their present situation? If ornamental gallery were possessed of this series by Rubens, and the cartoons of Raffaele, it would at once raise the national collection to a level with the great galleries of Europe, and fulfil its proper destination of instruction both to artists and the public. The vacant spaces in the ceiling of Whitehall Chapel would give a brilliant opportunity for perpetuating the fame of any one of our great painters, by giving him a commission to fill it. Had we done this by Etty, what a monument of the English school would have adorned the capital!

While on the locality of Marlborough House, it may not be out of place to suggest a very trifling change which might be advantageously

made here in the entrance to St. James's Park; that is, to cut off about 60 feet of the garden of St. James's Palace, which is elongated beyond the building, and to carry the roadway straight from Pall Mall into the park. St. James's Park cannot be said to have any very convenient or ornamental entrance from the metropolis, the low contracted arches of the Horse Guards being both mean and obstructive; the way through the stable-yard and Cleveland-row is also the reverse of spacious or beautiful; while cutting away this small slice of the garden would afford to the Sovereign and the Court a broad, airy, and unobstructed communication between the most elegant street of the capital (Pall Mall) and the palatial abode of royalty.

At present this tortuous way, occasioned by this small spot of inclosed garden, is scarcely frequented; grass grows between its uneven pavement; and a large dust-bin, with its cavernous mouth fully expanded, betrays accumulated filth, cinders, cabbage stalks, and broken garden pots! Such is the most open and spacious entrance to St. James's Park!

#### EXPANSION OF THE IPSWICH MECHANICS' INSTITUTION.

THE erection of a spacious hall, 63 feet long by 40 in width and 26 in average height, as an addition to the previous premises of this thriving institution, was too important an event to pass without special commemoration; and accordingly the hall-heating was celebrated on Tuesday evening in last week, by a numerous and highly-respectable assemblage of the patrons, members, and friends of the institution, who spent the evening in harmonious association, with music and eloquence, interspersed with temperate physical refreshments. Mr. J. Cobbold, M.P., occupied the chair, and was accompanied by the mayor, the recorder, Mr. T. S. Gowing, Messrs. A. and R. Ransome, Rev. J. Lord, and other gentlemen. The hall was graced by the presence of many ladies, to whose paramount influence over the rising generation, and importance as their earliest educators, the recorder, Mr. David Power, took occasion to make pointed and impressive allusion, in a speech received with repeated expressions of applause.

He had heard, he said, but the idea always jarred upon his mind, that they came to a meeting like that merely to grace the scene. He did not derogate from their grace; far from it. But he thought they ought to come, and he believed they did come, many of them, from a far higher and far holier motive. There was no class upon whom intellectual culture was more incumbent, or was a more sacred duty than upon the women of England. If they felt the duty that was imposed upon them, as they must feel it, they would own that mechanics' institutions,—in the lectures that were delivered within its walls, in the books which adorned its shelves,—that these should be participated in, as he was glad to observe was the case here, by the women as well as by the men. If there were any feature in the present times more gratifying than another, it was to see the great truth at last beginning to be acknowledged, that the sacredness of intellectual culture was felt as much by the one as it was by the other. He believed we should not live to see it, but those who came after us might, that when women received the education to which they were entitled, they would make of the men a different race from what they now were, to carry on the work of reformation throughout the world. If what were really in his own mind most solemn thoughts had found a resting place in the heart of but one individual present, if they fructified and brought forth, unknown to him, and unknown perhaps to the individual himself, good fruit in future, then he should be heartily content.

The meeting was afterwards addressed by Mr. Gowing, to whose energetic and continued exertions the result which the meeting had met to celebrate is mainly due. Mr. Ransome, the secretary, gave an official speech, and the meeting was also addressed by the Rev. Mr. Lord and other gentlemen. In responding to a vote of thanks to the building committee, Mr. Gowing complimented the architect, Mr. Woolnough, Mr. Whight the contractor, and



the workmen, for the way in which the works had been carried out.

The hall floor, for convenience of sight and hearing, slopes upwards from the platform, which is on a curve at about 2 feet from the floor. The walls are faced with Roman cement, stone coloured, and relieved by pilasters. The ceiling is divided by beams into compartments, the two central filled with ground glass skylights, and surrounded with perforated zinc ventilators. From each angle of these also depends a bronze chandelier. The wall on the platform side is set in with wood painted of a deep blue for chalk illustrations to lectures. An apparatus for warming the hall with hot water has been fitted up. The chief entrance is from Tower-lane; a more characteristic and dignified entrance, however, is wanted, to be in keeping with the extended scale and importance of the institution as it now exists.

#### DISTRICT SURVEYORS' FEES.

It is perfectly well known to the profession, that there is but one district-surveyor who has the brass to send in such an account as that quoted in your last week's paper; he is the same who was exposed recently for having charged 17. 15s. for surveying the fixing of an Arnot's ventilator, and his name is too familiar to all our class. But THE BUILDER is now taken in by and perused at clubs, and by mercantile men, and private families, many of them our personal friends or our clients, who are fortunate enough not to have heard the name of the person in question.

Your kindness to him, in withholding his name from the public eye, I for one cannot "appreciate," for your generosity is bestowed at my expense and that of my brother surveyors, who are not a little indignant at the dirt which this man is throwing upon the whole body. With due submission, too, I beg to differ from you on the propriety of your silence, in another respect besides its evident injustice. I look upon you as a public moralist in all matters relating to building; you freely indulge in the pleasure of praise, when praise is merited; and I humbly think that it is your duty to censure when the reverse is the case, and to censure most severely, too, when such very gross attempts at extortion are persevered in, as the one now made public. It may be said that the award is sufficiently condemnatory. It would be so, no doubt, if this were the first offence, but to an old offender the lash ought to be laid on less scrupulously, and in this case it would require a relay of builders to handle it well.

I regret exceedingly (but for his sake alone) that I feel myself compelled to make these remarks; and if you had only named the man, I should not have said one word; but I affirm that, by your silence on that head, you have indirectly implicated my credit and that of many others, in the subject-matter of your statement; and whilst I write to deny that I am the surveyor alluded to, I trust I shall be excused for expressing myself with some of the indignation which I feel.

HENRY BAKER.

Upper Gower-street, March 11, 1850.

#### WATER FOR THE CITY.\*

MR. HAYWOOD has rapidly followed up the report recently noticed in THE BUILDER by the present, constituting, in fact, a little book on water-supply. He gives it as his opinion—

"Firstly, that the water companies should be bound to supply 30 gallons per head per diem, should the anticipated prospective fair increase of consumption take place.

Secondly, that whether a constant supply is or is not given, it is desirable that a supply at a pressure sufficient to deliver water at the tops of all the houses should be given uniformly throughout the city of London. That if a constant supply is given upon the *intermittent system*, and adequate compensation is provided so that water may be drawn at all times between the intervals of supply—the supply is *practically constant* to the consumers; but that many instances exist where, if the constant supply fulfilled its signification, and cisterns could be dispensed with, it would be a great benefit.

\* Report to the Committee upon Health of the London City Sewers Commission, on the Supply of Water to the City. By W. Haywood, Surveyor to the Commission.

That inasmuch as it appears questionable whether it is expedient to discontinue the use of cisterns, even if the constant supply be given—and also, that it may be found necessary to incur a large expense to effect and maintain a constant supply, without a commensurate benefit, application should be made for the trial of the system of *constant supply at high pressure* upon a particular district within the city of London for a given period, in order to determine accurately what are the effects of its introduction as regards waste, and what benefits may practically be derived from it."

Though not specially referred to him, the author also treats pretty fully on the subject of quality and price.\*

#### Miscellaneous.

**BUILDING SOCIETY DISPUTES.**—In a chancery suit, at the instance of Mr. Seagrave, for the redemption of a mortgage of leasehold property by the solicitor and trustees of the Camberwell Building and Investment Society, whose rules were drawn up in conformity with the provisions of 6 and 7 William IV., cap. 32, Mr. Parker, for the plaintiff, argued that his case was distinguishable from "*Mosley v. Baker*," decided by Vice-Chancellor Wigram (17 *Law Journal*, N.S., 257), inasmuch as he had not discounted or anticipated his shares, but had merely received money on the security of his property, and that if he repaid the amount he had received, he continued a member of the society. This was a loan upon security; "*Mosley v. Baker*" was a case of purchase of shares in the strictest sense of the term. For the defendants it was contended that the case must be governed by "*Mosley v. Baker*." Vice-Chancellor Sir J. L. Knight Bruce, without calling upon Mr. Parker for a reply, gave judgment, and observed that he had given the case very careful consideration. He thought the notice given by plaintiff of his wish to satisfy the mortgage, one month before the commencement of the suit, was perfectly valid and binding, the deed not precluding such notice. Plaintiff was entitled to have restored to him the property comprised in the deed upon paying the balance of the 544*l.* at the end of a month from the notice, with interest at 4*l.* per cent. from that time, he having credit given him for the monthly payments of 8*s.* 6*d.*, so far as they had been made by him to that period. The plaintiff ought to be debited with the monthly payment of 3*s.* 6*d.* for redemption money, so far as not paid by him within the same period, but not with any monthly payment in respect of any period subsequent to the end of the month in which notice was given. The case of "*Mosley v. Baker*," he was of opinion, did not govern the present case. Upon the subject of costs he thought that the rules and the deed were of such a description that there ought to be no costs allowed on either side. During the debate in this case, the judge, as well as the plaintiff's counsel, gave expression at some length to sentiments in regard to building societies in general, as at present constituted, in entire accordance with those repeatedly pronounced in THE BUILDER.

**WIDE ESTIMATING.**—Tenders for reparations and alterations to the machinery and going gear in Sunbury windmill: Mr. Edward Ryde, engineer:—

Stewart, Clement's-lane .....	£170	0
Chamberlin, Hampton Wick ..	162	0
Smith & Co., Princes-street,		
Leicester-square .....	90	0
Ashby, Geyrden .....	69	0
Bishop and Spencer, Guildford	59	8
Moore, Sevenoaks (accepted) ..	54	0
Budgin (too late) .....	51	0

\* A "Metropolitan Parochial Water Supply Association" has been instituted for the practical application of the following propositions:—1. That water is not a proper object for mercantile profit. 2. That its unlimited and pure supply ought to be furnished at the bare cost of its distribution. 3. That it is the interest and the duty of the community to enforce the introduction of an abundant supply of pure water into every house in the metropolis, without exception or distinction of class, on the principle of constant service and high pressure. 4. That the necessary supply should be managed by a parochial representation, regulated by a competent commission chosen by the consumers, and paid for by a parish rate on the adjustment of an equal assessment. 5. That the supply of water to great cities is a duty which should be undertaken by the public, and that the right of the poor to a competent supply of this primary element is as clear as the duty of the community to place the indigent beyond the want of bread, although 70,000 houses within the metropolitan districts are left without any conveyed supply of water, and the proportion furnished to each consumer, already totally inadequate, is yearly diminished by the wants of 45,000 additional inhabitants.

**PROJECTED WORKS.**—Advertisements have been issued for tenders, by 25th inst., for station-houses and gate-lodges between Nottingham and Grantham, for the Ambergate and Boston Junction Railway; by 26th, for making and constructing drains and sewers at Eton; by 22nd, for erecting about forty carcasses of houses at Dalston; by 23rd, for the erection of twenty carcasses of houses at Kingsland-road; by 23rd, for carpenters' work on the metropolis roads; by 22nd, for repairs of pavements, &c., at Poplar; by 21st, for paving in St. George's-in-the-East; by 21st, for paving and repairing streets and ways in St. James's, Clerkenwell; by 1st April, for the construction and erection of iron roofing over 6,800 square yards of new London Terminus of Brighton and South Coast Railway; by 28th inst., for 440 wheel tyres for carriages and waggons, also 400 bearing springs and 200 buffer springs for the Eastern Counties Railway; and by 19th, for repairing turnpike roads at Wearmouth.

**METROPOLITAN SEWERS COMMISSION: DRAINAGE OF LONDON.**—At a general committee meeting on Friday last, the report from Sir H. De la Beche, Captain Dawson, Sir John Burgoyne, and Mr. R. Stephenson, on the drainage plans, was received. The private deliberations of the committee occupied nearly three hours, but the report has not yet been submitted for consideration in open court. Considerable dissatisfaction has been expressed by the rate-payers of St. James's, Westminster, on the subject of the new commission's proceedings. At a recent vestry, the following resolution was proposed:—"That the vestry learn with surprise and regret that the new Commission of Sewers for the Westminster district, in which this parish is comprised, have sanctioned a large outlay of the rates for the construction of a new and additional sewer, which is to have its outfall into the Thames, thereby, in the opinion of this Board, contravening the great object of the appointment of the present commission, which was to devise a plan for diverting the sewage from the river.—That the vestry have learnt with equal regret that the Court of Sewers have appointed an additional officer at the large salary of 1,500*l.* per annum, whose first act has been to continue the old system of partial and objectionable drainage.—That they had looked forward to the present commission as a guarantee against any further outlay of the rates in new works until the great object sought by the public was decided upon."

**MORE IRON HOUSES FOR CALIFORNIA.**—Mr. E. T. Bellhouse, of Manchester, who seems to do all the *ironing* for that gold-washing region, where *mangling*, too, is not unknown, has just now completed two more iron houses for California. The frame-work and sides are made of iron, corrugated in order to impart to them additional strength. One of the houses consists only of a single story, containing a sitting and bed-room. The walls, floor, and ceiling are boarded entirely over, and the interior thus possesses an air of comfort. The sitting-room measures 11 feet by 6, and is 8 feet 3 inches in height. It is furnished with a stove of an improved description. The value of this house is 90*l.* The second house is of two stories, and contains, altogether, eight rooms,—three parlours, and a kitchen below, and four bed-rooms. Each of the two front parlours (one being on either side of the door) is 12 feet square; while the two back rooms measure 12 feet by 10, the height being proportionate. The bed-rooms are exactly the same size as the lower apartments, with the exception of one, which, extending over the lobby, measures 14 feet by 12. The sides, floors, and ceilings, like those of the first house, are boarded and painted. The value of the latter house is 460*l.*

**THE MASONRY OF THE BRITANNIA-BRIDGE.**—At an entertainment given on the day the tubular bridge was opened, Mr. Stephenson mentioned incidentally that there had been 3 cubic feet erected per minute for twelve hours each day, six days per week, for three successive years.

**NEW HOUSE OF COMMONS.**—The sum required for the completion of such portions of the New House of Commons as are necessary for the convenient transaction of business is estimated by Mr. Barry, in a statement recently issued, at 102,180*l.*



**RAILWAY JOTTINGS.**—"I know," says Mr. Glyn, the highest authority in one of the most important railway lines in existence, "that many Railway Companies have Bills before Parliament, which are based on the supposition that the mere raising of fares will lead to a restoration of prosperity. Of course, if any raising of fares should take place, we shall participate in it; but upon the facts and the figures which are before us, excepting those which have reference to the express trains, I am prepared to say, that if we had in our own hands at this moment the power of increasing the fares,—the facts and the figures showing a falling off in the receipts for first and second-class passengers, have, I say, led me to the conclusion that we should by that means only diminish the number of travellers in those classes." It is gratifying to find one's own confident predictions now corroborated and confirmed by such an authority. We hope the eyes of others of influence in the railway kingdom will now be also opened to the doubtfulness of such a way of mending matters.—"The stations on the Lancashire and Yorkshire, which are very numerous, entail an expense on the Company," says *Herepath*, "equal to 2d. per passenger. The expense on the London and North-Western is also very great, and hence the observation of Mr. Glyn, that a small booking fee might save the advance of fares. If this be done, it should be in proportion to the distance, or it would fall very unequally on long and short passengers."—Gigantic railway bridges are about to be thrown over the Rhine at Dusseldorf and Cologne; and foreigners, it is said, will be invited to send in contracts for them.

**GAS IN GUERNSEY.**—As most of our readers may remember, gas was till lately charged in Guernsey at the really quite unsaleable price of 12s. per 1,000 cubic feet, and the consequence was, that, in a locality possessing a town parish population of 16,000 to 17,000, gas was so expensive a luxury that not even the streets were lighted, and that the shopkeepers even, with pipes and apparatus for it up in their premises, could only afford to light their shops with it on a Saturday evening! A spirited gas manufacturer, one would have thought, might have had very little difficulty in finding out the real reason why his sale, and hence his profit, was so limited. In the present instance, however, not even the constant grumbling of the few consumers, and the many would-be consumers, who desired to purchase and to use it largely,—not even the remonstrances of the *Guernsey Sun* and other authorities, seconded by our own humble endeavour, could fully open the eyes of the virtual darkener of the streets, and shops, and houses of St. Peter's Port to his own best interests: true, with a glimmering of returning light he at length saw the necessity of admitting himself to be in the wrong, by granting a stingy instalment of reduction; but the patience of those who are waiting for light in his little dominion is exhausted, and at length the oft-threatened blow is struck. A new company is formed, and "opposition will be useless on his part, as almost all the gas consumers are shareholders." It is even "now a chance if he do not lose the two islands Guernsey and Jersey both." It is really a thousand pities that one who is seeking, we presume, his own profit in manufacture, should be so blind to his own best interest, and so unwilling to be led, even blindly, into that interest. If not *trop tard*, as his late supporters may now regard it, we would earnestly advise a liberal compromise, after carefully studying the instructive lesson to be learnt in the Gas Returns, by manufacturers themselves, to Parliament.

**FREEMASONS OF THE CHURCH.**—At a meeting of this association, held on the 12th inst., some strong resolutions were passed expressive of concurrence with the intended Exhibition of 1851. Sir Walter James, Bart., afterwards read a paper on "The Use and Abuse of the Imaginative Faculty, with reference to the Fine Arts." Some interesting specimens of ancient art were exhibited.

**THE EXHIBITION OF MEDIEVAL ART,** about to be opened at the Society of Arts, is of the most interesting kind, and cannot fail to exercise a good influence on the minds of those skilled artisans who will visit it.

**THE PANOPTICON OF SCIENCE AND ART.**—Some of our readers have asked for information concerning this proposed institution. The principal object the parties who originated the Panopticon have in view, is said to be, to extract intellectual profit from pleasure, by bringing forward on a grand scale, before the public, the principal discoveries in the arts, and showing, practically, the various processes of science now, to the million, a mystery. They wish, too, to make these things serve for other purposes than a mere show. They would have them put forward in a way such as would attract by the pleasure that the mere exhibition would give, apart from the intellectual good that might result; but so to arrange these exhibitions that instruction might succeed to vague curiosity,—that those who come, perhaps, but to while away an hour, might be led to think that the study of nature's wonders might be a more instructive, as well as better occupation, than the accustomed pursuit of idle pleasures. They propose, also, to offer to those who wish to make science a recreation, but are prevented by the expense, a place where the best instruction and the greatest command of apparatus can be secured at a moderate price. To carry out these main objects, and many others secondary, to which the prospectus alludes, it will be necessary to have a building, apparatus, &c., on a great scale, and with such means of putting forward the various experiments and exhibitions as will let the institution vie in its attractive powers with the great places of amusement now open,—to let the building be of that magnitude and grandeur which shall remove all idea of the show-room and bazaar, whilst every part of its construction and details shall show the result of some modern invention or improvement. Whether or not this will be done is yet to be seen. Messrs. Finden and Lewis are the architects employed, and we understand their plans are nearly ready.

**IRON ROOF, LIME-STREET STATION.**—The iron roof of the Lime-street Railway Station, Liverpool, mentioned by us some time ago, was described by Mr. Turner at the Institution of Civil Engineers, on the 19th ultimo. The area covered is 374 feet in length, and 153 feet 6 inches in breadth, which is roofed over in one span. The roof consists of a series of segmental girders or principals, fixed at intervals of 21 feet 6 inches from centre to centre; these are supported, on one side, upon the walls of the offices, as far as they extend, and on the other upon cast-iron columns. From the end of the offices to the viaduct over Hotham-street, a distance of 60 feet 4 inches, the principals are carried upon a "box beam" of wrought-iron. The principals are trussed vertically, by a series of radiating struts, which are made to act upon them by straining the tie-rods and diagonal braces; they are trussed laterally by purlins and by diagonal bracing, extending from the bottom of the radiating struts to the top of the corresponding strut in the adjoining girder; these braces are connected with linking-plates by a bar of the same scantling, and also with the purlins already referred to. The girders are thus firmly knitted together, and a rigid framework formed, upon which the covering of galvanized corrugated iron and glass is laid. We may find an opportunity to describe this roof more in detail.

**OXFORD ARCHITECTURAL SOCIETY MEETING, MARCH 6.**—Mr. John Buckler was elected an honorary member of the society. Mr. Lechmere, B.A., corresponding secretary, read the report, which stated that the plans of Eye Church, Hertfordshire, had been sent for the inspection of the Committee, who had made observations, and given directions to the secretary to communicate them to the rector. After alluding to other matters, the report concluded with an exhortation to the members of the society to use their best endeavours in furthering the principles of church architecture and church arrangement, and to devote a portion of their time during the ensuing vacation to a study so important, more especially to those about to enter holy orders. The Rev. T. Chamberlain, M.A., then read a paper upon "The Structure and Arrangement of Chancels best suited for the services of the Church."

Mr. J. P. DEERING, R.A., better known in his architectural capacity as John Peter Gandy, died on the 2nd inst. We will take an opportunity to furnish some particulars of his life.

**THE PRINTING-PRESSES OF THE "TIMES" EXCELLED.**—A new machine, it is said, has been exhibited at Paris, that promises to throw over the *Times*' presses into shade. It consists, as described, of a series of lateral cylinders, in little more than half the space of the machine with which the *Patrie* is printed, costs less than half, and is free from its cords and tapes. Each machine requires only three men. The printing is from stereotype, and one machine throws off 15,000 copies an hour. Each cylinder carries a continuous sheet equal 2,000 copies of a journal, and each copy is cut off by the machine and folded. The stereotyping is a work of fifteen minutes! A few sheets of tissue paper are placed together, and pressed on the face of the types; this is the mould; the metal is poured on it, and the stereotypes are ready. The total cost of one machine is 25,000 francs.

**ST. PHILIP'S CHURCH, BIRMINGHAM.**—The following tenders have been received for reseating St. Philip's Church, Birmingham. The quantities were furnished by the architect Mr. C. W. Orford:—

Bramson and Co.	£86
Smith	625
Kendrick	591
Briggs (accepted)	530

The whole of the seating is to be of oak, with standard ends and low doors,—the old pulpit and desk are to be abandoned, and new ones each side of the aisle, substituted. It is believed that these alterations in the interior will end in the complete restoration of this church on its exterior likewise.

**WORKSHOP.—NEW SURVEY AND VALUATION.**—The guardians have appointed two surveyors to make the required new survey and valuation of the town and parish of Work-sop, viz., Mr. Wilmot, late steward to the Duke of Newcastle, as the valuer, and Mr. Robert Watkins as surveyor. Mr. Wilmot's tender was 150*l.*, and Mr. Watkins' 125*l.* The board had received thirty-seven tenders, varying in amount from 70*l.* to 1,100*l.*

**ARCHITECTURAL BEAUTY.**—Of what avail is it that the architect studies to produce objects for the admiration of all lovers of the noble and beautiful in architecture, if the fruits of his labours are to be defaced and spoiled by the negligence or want of taste of those to whose care his works are ultimately confided? I am led to put this query by observing to-day, at St. Margaret's, Westminster, another instance of what I have frequently seen with regret, viz., volumes of dense smoke, highly charged with carbonaceous matter, issuing from huge, ugly stove pipes that may be seen projecting either through the roof or out of the windows of many really very fine specimens of the architectonic genius of our countrymen; blackening and defacing them by the consequent deposits of soot. Really in this age of invention, when improved smoke-consuming stoves of every possible variety of form are almost daily ushered into existence, it is an almost unpardonable offence against architectural propriety, that a stove pipe is anywhere to be found rearing its sooty head amidst the rich embellishments of a fine old pile of building. That stoves are indispensable I am not prepared to deny; but why not use those that consume coke, charcoal, or gas, the vapour from which is invisible? Their flues would neither be unsightly when in use, nor would they scatter their grimy and indelible traces around them. J. T.

#### BUILDINGS AND MONUMENTS, MODERN AND MEDIEVAL;

Being Illustrations of the Edifices of the Nineteenth Century, and of some of the Architectural Works of the Middle Ages.

Edited by GEO. GOWDIN, F.R.S.,

Fellow of the Institute of Architects; Corresponding Member of several Societies.

Part VI. of this work, price 2s. 6d., is now ready, containing Views of the Great Hall at the Euston Station of the London and North-Western Railway; the General Meeting-room at the same; the Mansion of H. T. Hope, Esq., M.P., Piccadilly; St. Barnabas's College, Queen-street, Finsbury; Romsay Abbey Church; the London Coal Exchange, Lower Thames-street; the House of Francis I., Champs Elysees; Paris; the Hotel Lacarriere, Paris; Font in the Madeleine; Paris: with descriptive Letter-press, and Details.

Part VII. will be published May 1, and Part VIII. will complete the work. To prevent disappointment, the names of parties intending to take the work when completed should be sent forthwith.

Published at the Office of "The Builder," 2, York-street, Covent Garden, or by order of any Bookseller.











# The Builder.

No. CCCLXXII.

SATURDAY, MARCH 23, 1850.

**T**HE last of Mr. Weale's rudimentary treatises, namely,—  
 "The Principles of Design in Architecture, as deducible from Nature and exemplified in the Works of the Greek and Gothic Architects," by Mr. E. L. Garbett, Architect,—is a very noticeable work, full of thought, and showing much ability, though with some vagaries. A powerful rebellion against the doctrine of mere copyism has sprung up, and Mr. Garbett is a new and not weak ally. Our question, often put in times gone by,—shall architects only copy?—is finding an answer in the negative in many quarters, in loud, and sometimes not too courteous, tone. Mr. Garbett says No, too, and would point out what they may do instead.

It is not a trifling thing to give freedom of thought—to strengthen men to speak out when what they feel to be true and right is contrary to the prevailing opinion, and to enable them to throw off habits which are so much more easily acquired than quitted. "What I affirm," says Mr. Newleafe, "is that the true principles of criticism are not comparison with authorities, but abstract test by principles of nature and reason. I say, when you design go to your own intellect to guide your hand by its regulations—not to books and dogmas and rules of styles; go to nature and the principles of human judgment and taste. 'He who would really become an architect must leave the special discussion of styles, and steadily look to the true end and aim of his art.' So says Professor Cockerell; and it is a gleam of living light appearing in dead darkness when he says so. May it increase and increase till men can see by it! But how strange that it should be so wonderful a thing to find an artist telling artists to go to nature! Vague and weak as are the words, yet hear them, hear them and ponder them—'the end and aim of the art.' The ancients went to nature when they produced those very authorities you go by; the originator of every style in your registry must have gone to nature for his principles; and I say, instead of tethering yourself by these, go you to nature also."

And here we will take the opportunity to say that Mr. Kerr's "Discourses on the Fine Art Architecture," first published in our pages, have not received that acknowledgment from the recent travellers in the same path which the latter owe them.

The plan of Mr. Garbett's little work is said by the author himself to be this:—The first chapter asks what is architecture, and what are the objects at which it aims? In the three following an endeavour is made to deduce from the works of nature, and from the consideration of these objects themselves, some rules and principles which might be expected to conduce to their attainment; and to show that these principles have really presided in the most successful productions of the art. In the last two chapters he examines the two architectural systems—classic and Gothic—concluding with some remarks on the present state and prospects of the art.

After maintaining that all buildings which are planned on simply utilitarian principles—built with no view beyond utility and strength—are not merely indifferent, "but positively hideous and disgusting to the eye," he falls upon the amusing notion that an architectural building is ugly, simply because it looks selfish!

"A great building is, in certain respects, a necessary evil; it shuts out from us air and light, and the view of beautiful nature; it encumbers a portion of the earth's surface, and incloses a portion of the free atmosphere. It has no right to do so without making or attempting what compensation it may, for these injuries. Therefore, the building which makes no such attempt, offends all eyes,—I should rather have said all minds."

Again:—

"A building devoid of architecture displeases all who see it,—all whose share of heaven's light is intercepted,—whose view of the fair earth is bounded by it; because they see and feel that it benefits its owner at their expense;—they have not been thought of in the design; it is all for self, without appearing to care whether they are incommoded or not, or to know that there are eyes without as well as within. It is this crude, selfish rudeness which requires to be softened down by a politeness either natural or acquired, and this politeness we term architecture. It is only one portion, indeed, of the aim of 'architecture proper,' but it is the most indispensable portion, without which all attempts at the higher aims of beauty, sublimity, or definite expression will be totally useless. The building that aims at being any thing more than useful and strong, must first be polite. This is the lowest quality in architecture as distinguished from building."

Every building must show an aim beyond convenience and stability. "If this desire to appear unselfish be wanting, it is waste of time to attempt elegance, waste of money to add decoration; all the graces of Palladio, and all the ornaments of Barry, will avail nothing; the mask will never completely cover you; your real self will peep out somewhere, and spoil all." This is really a little too hard, since it would seem to assert, that although a building be made something more than useful and strong,—has not only "fitness and stability," but "beauty" also,—unless this beauty was expressly given for the pleasure of others rather than the owner, it is still a selfish building, an unpolite structure, and is therefore not architecture. A building erected wholly in accordance with some popular fashion (no matter how wild that fashion may be), and even if quite unsuited to its purpose and the wants of its occupier, must be the perfection of courtesy and politeness—"the first quality in architecture as distinguished from building." The writer thinks his remarks may perhaps "place the question of architecture or no architecture in a light which never struck the reader before." We confess to this ourselves, and moreover that we think the light is a false one.

With the inference of the author we fully agree, have often urged it, though we deduce it from different premises; and we would have it well known and thought of:—

"If, as all admit, it is the mind, and the mind alone, that sees, tastes, feels, likes, and dislikes, objects of art or taste, are not these self-preservative antipathies of the mind to be respected, as well as those of the body? Does not this become a matter not of refinement and luxury, but of interest and duty? Are not ugly objects to be withdrawn as inflicting mental injuries, just the same as a nuisance, a noise, or a stench, which is known to be injurious to the body, because unpleasant? We may laugh at the idea of the mental injury accruing from one glance at an object of bad taste; so we may at the bodily injury from a

passing whiff of smoke: yet we acknowledge a difference between the health and longevity of those who live in smoke and those who live out of it. Habit counteracts and renders us insensible to the unpleasantness, but not the injury. Who, then, shall dare to guess the difference in mental health, between a people living surrounded and immersed in objects of bad taste, or in objects of good taste,—between a people whose works are all utilitarian, and one whose works are all artistic. These extreme cases, remember, are not imaginary. History has afforded examples of both."

The writer continues to press his notion that the spectator must see that the thought bestowed on a building, has been given for him.

"It is exemplified," he says, "by the ornate villas that spring up along suburban roads. Every one feels that, with all their ornamental frippery, their aspect is as uncourteous, as intensely selfish in expression, as that of the 'hole-in-the-wall' house backs, or any other pieces of professedly unarchitectural building. This is because every spectator sees that there has not been a thought bestowed on him. The whole has been designed from within, like the oyster's shell, without the slightest reference to those without; and then they have been sought to be appeased by sticking on ornaments wherever there was a place for them. But this will not do; no one is so easily deceived as this. You cannot 'hide by ornament the want of art,' still less the want of thought and study."

Certainly not, and this is the true reason of the want of pleasure to the spectator: let him see the evidence of design, the result of cultivated thought, and he will not stop to ask whether the thought was bestowed for him or the owner. There is no substitute for thought; and this our author ably illustrates in another part of his work:—

"Among the few that enlist on the side of truth, and resolutely engage in this perpetual conflict against false, against popular, against national taste, it must ever be borne in mind, first, that there is no substitute for thought. All the ponderous tomes of examples, specimens, &c., from Adams and Stuart downwards, have been intended or received for this purpose, and, as such, are not only totally worthless, but extremely prejudicial, though invaluable as materials for analysis, free criticism, and search into principles,—for which purposes they have never yet been used."

Nothing can increase the value of a design, which does not increase the labour of the designer (by designer I do not mean draughtsman). Every reference to precedent should do this, and will do so with every true artist. But the false artist refers to precedent to save himself trouble,—that is, to cheat his employers, by diminishing the value of his work without diminishing its apparent value."

The province of expression in architecture he thinks overrated:—

"To distinguish a club house from a mansion is beyond the province of expression in any art. It is not to be done by expression, but only by language, and architecture does not pretend to be phonetic. If you want to distinguish the destinations of these buildings, the best way is by writing up their names. It was not always the best way. Hieroglyphics, arrow-headed letters, insignia, coats of arms, were each preferable in their day, simply because they were more extensively understood, and for no other reason. You may make a language of any thing—rustic quoins, Gothic windows,—provided people will agree to understand them alike, and take this for church, or that for club-house; but what is the advantage of substituting a new and extremely limited language, understood by very few, for an established and incomparably more copious language, understood by the whole nation?"

Against deception in architecture, he wages proper war; until we can be taught that nothing is beautiful which is not true, we shall find taste a jewel beyond the reach of all England's wealth to buy, and of all her power to win.



The sixth chapter, treating of the constructive principles of the mediæval architects, is ably written, though containing much from which we differ. The author's opinion of the parish churches left by the mediæval builders is singularly erroneous: if he had given them the study they deserve, he would not say "those who built them were totally ignorant of the principles of that or any other architecture, repeating as well as they could the mere details, empty forms, or clothing, of the only architecture they saw—that of the scientific fraternity of Gothicists—without the remotest conception of its meaning, motive, or principles!"

Mr. Garbett has little hope for the future; "the general taste can never improve. Pure taste can never again prevail; but it can *fight*," and to this he leaves it. He thinks we have a *national style*, and the view he gives of it is not very flattering to national character.

"More distinctly than the Egyptian piles speak of tyranny, slavery, and priestcraft;—more fully than the Greek express intellect, polish, and refinement;—more loudly than the Roman proclaim ambition and general energy;—more truly than the Gothic embody a religion, or rather a romantic devotion;—more than all, does every form and feature of the modern English style express fickleness, low cunning, hollow affectation, simulation, servility, and thought-flying hurry. What! are these then our national characters? No, but they are the characters of the *many* in every nation; and we are as yet the only nation that have a style of the many. I appeal to all who have ever returned to our shores, after a long absence, to say whether they could shut their eyes to the hateful expression that met them in every building;—whether they could at first walk our streets without being disgusted, and, if of a sensitive temperament, almost sickened, by the intensely marked character of the architecture."

We will simply add, that the principle which he points to as the basis for a new system is the *truss*, in opposition to the beam and the arch, the basis of past systems; and will conclude with a quotation which embodies much of what has been already said, and deserves constant consideration:—

"A retrospective glance at the history of the Gothic system, as of every other, will show us progress, as long as the object of the artists was *Truth*; decline, the moment that object became *Novelty*; progress, as long as minor and decorative forms were imitated from great structural and essential ones (but so modified as to be brought into a lower class, more curvilinear, more eumorphic, less architectural); decline, the moment structural forms were copied from decorative ones, and whenever copying was substituted for imitation; progress, wherever the great governed the little; decline, wherever the little governed the great; progress, whenever the problem was how to adorn a proposed construction; decline, whenever it was how to construct a proposed adornment; truth, whenever it was sought for its own sake; falsehood, when any *thing* else than truth was the object; truth, whenever the work was loved for its own sake; falsehood, whenever it was got through for the pay's sake; truth, as long as it was sought how to *lavish most thought on a given amount of work*; falsehood, as soon as it was sought how to *effect a given object with the least expenditure of thought*."

**DAMAGE FROM FALL OF HOARDING.**—In Queen's-road, Brighton, a screen having been run up 25 feet, for the purpose of blocking up nearly all the windows of a rival establishment, the screen fell, and, as alleged, caused damage to the building; and a jury in the home circuit, before whom the case was lately brought, has given a verdict of 25*l.* damages: the point of legality in such an erection—the sole purpose of which was admitted—does not seem to have been considered.

#### HOW SHALL WE BUILD OUR CHURCHES?

I beg to offer a few remarks on a letter which appeared in your last number relative to a recent pamphlet of mine. I may premise that I am totally unacquainted with the writer, and therefore my observations must not be considered in the slightest degree personal, as I merely judge of his principles from his argument. I must say it was with no little surprise that I found myself attacked as the advocate of an artificial system of architecture, when not only by my writings but in my works I have always endeavoured to set forth that most important principle of *reality, both in design, material, and construction*, and of scrupulously avoiding all shams, or dressing-up of buildings with unreal features. But on a further perusal of the article, I felt satisfied that the writer belonged to a class of persons who are not in a position to comprehend the basis of my arguments, or the principles on which I, in common with so many persons usually termed ecclesiologists, advocate the restoration of ancient ecclesiastical architecture. It is evident that the writer's idea of a place of worship is nothing more than a preaching-room. What he calls a *common-sense church* is, in reality, no church at all, but a most decided *conventicle*. He would abolish pillars, as hindering a view of the preacher; he advocates galleries, as affording cheap accommodation to a large auditory; he objects to a deep chancel, as *diminishing the voice* of the clergyman (he evidently imagines a chancel is a preaching place); with him it is all *roos*, and, I may add, *præterea nihil*. I am willing to admit that his common-sense church is perfectly adapted for persons of his class, who are unable to enter either into the solemnities of religious worship, or the symbolism of ecclesiastical architecture; his great galleries room, with its flat roof and open space, is a very natural expression of a huge dissenting preaching-house; moreover, it possesses the advantage of being what is technically termed a convertible building; should the orator fail in collecting a sufficient auditory to pay the proprietors, by removing the pews and erecting an orchestra, it would make an excellent canteen, with reserved seats in the galleries; or if that might be considered objectionable on moral grounds, or the neighbourhood too retired, by flooring it over in stages a most eligible set of coachmaker's premises are produced at a comparatively small additional outlay. Now I do not quarrel with this class of buildings in the abstract, for they are perfectly adapted to the purpose, and it would be exceedingly ridiculous and even painful to see a puritan whitening over his sepulchre, and putting on a catholic coat. But let not those whose ideas do not extend beyond such miserable edifices venture to set themselves up as standards of ecclesiastical architecture, and imagine that the temples of God are to be brought down to such a despicable level. Do not let them suppose that the erection of a great Christian church is a mere question of huddling a number of persons together, and covering them over in the most economical manner. No; the edifice must be so constructed as to symbolize the mysteries of religion, not only in its plan, but in all its arrangements and its minutest details,—an edifice that, both by its external form and internal disposition, bears unquestionable evidence of its sacred purpose. No one would think of putting forth a great cathedral, or pointed church, as either an economical building or one easily constructed, or even convenient, according to the modern acceptance of the term. The cruciform plan entails numerous practical difficulties, and yet it is the very foundation of every great church in Christendom. The enormous height, another remarkable symbolical feature, requires a vast deal of most costly and difficult construction. I do not imagine that the designs of the ancient church builders were framed with reference to economy or facility of erection; their great aim was to produce an edifice that should illustrate the majesty of its purpose, and they spared neither pains nor cost to accomplish this end. Their works bear on their face the indelible stamp of faith, love, and devotion, and it is the unearthly look of these glorious fanes which forms one of their greatest charms, and by which they are so nobly distinguished from all

other architectural productions; now, as the faith of the church is unchangeable, the form and arrangements of an ancient church are just as appropriate for the nineteenth as for the thirteenth century; a noble pile, cruciform, lofty, and long, surmounted by spire-capped towers, surrounded by lateral aisles and chapels, provided with a screened choir and solemn sanctuary, with all its costly and beautiful furniture, is as much a natural expression of the Catholic religion in the present age as it was when the third Henry finished the choir of Westminster, or St. Louis dedicated the Holy Chapel of Paris. The externals of religion undoubtedly suffered a lamentable debasement during the last three centuries, but the *things and principles* remained, though under a distorted appearance; and by getting rid of this unnatural incrustation, and returning to the old and appropriate forms, we are not assuming a *disguise*, but only regaining our *natural habit*. Ancient forms for ancient rites is an undeniable proposition, and while we retain the old faith, we will retain that which it originally created for its service; hence we are fully justified in building the temples of God after the manner of our fathers, and not abandoning their wonderful traditions for modern expediency; indeed, a Catholic church should present, both in its architecture and arrangements, a striking contrast to the ordinary erections of the day. Civil architecture, owing to the natural constitution of society, is perpetually changing, and it would be great folly for any man, through an abstract love of mere antiquity, to oppose the modifications and constructive improvements that the altered state of society may require in domestic buildings. I have enlarged in some former publications on this very point, and was one of the first to expose the folly of reviving castles and other constructions, adapted only for mediæval warfare; whatever tends to public convenience, health, and prosperity, would be adopted by any reasonable man, and it would be preposterous, in edifices purely connected with commercial speculation, to diminish the returns by wasteful and extravagant architectural outlay. But I am moved to indignation when I find a man advocating the erection of religious edifices by the tariff of a warehouse, and lowering what should be the highest productions of human skill, to the level of mere building speculations. He is quite mistaken in ascribing my wish of massive buttresses and thick walls to a mere attainment of useless effect. If I had been able to erect them, I should have covered my chapels either with stone vaults or with roofs of a far more elaborate and appropriate character; his most scientific truss would be utterly disregarded by a true church builder; the temple of God is not to be roofed over like a station or fish-market; but the covering, by form and decoration, should symbolize that celestial region to which the worshippers beneath aspire. Let us examine one of those fine old roofs at March, Wymondham, St. Peter's, Mancroft, or any of the great timber-covered churches of the period, and what do we behold? A whole hierarchy of angels seem to hover over us, with outspread wings; they sail from every beam and corbel, and extend from bay to bay; in the hands some bear the emblems of the passion and man's salvation; others scrolls and phylacteries, with many a text and legend; each purline, principal, plate, and rafter is richly moulded and twined with flowrets and tendrils. These deeply set panels were once brilliant with stars and celestial bodies; the whole roof is glorious, and fully illustrates the inspired canticle—"O ye angels of the Lord, bless the Lord, praise him, and magnify him for ever. Oh, ye stars of heaven, bless the Lord, praise him, and magnify him for ever." When we consider these unrivalled roofs in all their bearings, their great variety of ornament and detail, the artistic beauty of their execution, and the symbolism and unity of their design, we must regard them as wonderful examples of ancient skill, and whatever improvements may have been effected in the scientific part of modern carpentry, it will be long before it produces a covering of such rich and harmonious beauty. Indeed, I should feel far greater satisfaction in having been the designer of one bay of those noble



roofs, than in trussing a pair of principals over Russell-square.

It now only remains for me to notice a most marvellous idea of the writer, that the massive walls of the ancient churches were so constructed on account of the scarcity of skilled artisans during the Middle Ages; and he asserts this, in the face of all the great existing ecclesiastical buildings, which, though not one half of what were originally raised, are still so numerous as to excite our astonishment; and, if these buildings have a fault, it is in the superabundance of skilled labour of the very highest order bestowed on them: many of them are literally covered from base to spire-top with wonderful geometrical inter-relations of mouldings and sculptured detail. Moreover, no men understood the combination of lightness with durability, when it was requisite, better than the old masons, as is fully shown in their lofty spires. The observation is not only an insult to the ancient artists, but to common sense, as any one acquainted with the old buildings must feel. I hate the modern boastful spirit which would exalt the mechanical superiority of our age at the expense of all that is admirable in the past. For my own part I never return from the examination of one of these glorious old churches, without feelings of the deepest humility: when I consider the amount of thought, practice, and labour it requires to reproduce one out of the multitude of their magnificent details, I can duly appreciate the talent that originally formed them; and if with all our increased facilities we find it so difficult to restore, what veneration ought we not to feel for the creators of this divine style! When, therefore, I find a man who, having attained some mechanical skill and experience in the tension of timber, attempts to laugh down as clumsy contrivances the great roof at Westminster or the stupendous vaults of Cologne, I cannot refrain from exposing the fallacy of his positions. I have no doubt that he is a very good and useful man in his way, and if I had to construct a viaduct over a canal at the least elevation, I should gladly avail myself of his trussing experience; but do not let him interfere with the masons of the church. We pointed men have pointed tools, and can contrive occasionally to cut other things besides crockets.

A. WELBY PUGIN.

#### ON THE MAUSOLEUM OF HADRIAN, NOW THE FORT ST. ANGELO, AT ROME.\*

THE mausoleum was formed of a large basement, which measured 253 feet on each side, making a perimeter of 1,012 feet. The door, or entrance, was in the middle of the south side, facing the passage across the bridge. At the four angles of this solid basement were colossal statues, or trophies—I rather suppose them to have been those horses which are mentioned by the Monk of Antioch; in the centre of this square massive foundation, which was adorned by festoons and bucrani, rose the round tower, which still, in a great measure, exists and serves as the donjon or keep of the castle. This tower did not diminish towards the top as some have supposed, for Procopius measures the diameter at the top by the same expression of a stone's cast, as he measures it by at the bottom; though diminished by all the marble facings in width, it still yields a diameter of 188 feet. The round mass was compacted together of peperine stone and the usual materials employed in solid Roman works; but it was all faced with square blocks of Parian marble. We must accede to the generally received opinion that two magnificent colonnades were round the monument, dividing it into two stories, and that statues stood in the inter-colonnations. These statues were probably *chefs-d'œuvre* of art. The famous Barberini Faun, which was found by the pontiff of that name in a ditch of the fort, is a specimen; the dancing faun in the Florentine gallery is another; these had either fallen from their place, or had been used by the troops of Belisarius for overwhelming their assailants. The summit of the edifice, which finished in a dome-shaped roof, was crowned, as some think, by the large bronze pine found in dig-

ging the foundations of the S. Maria Transpontina, and which is now to be seen in the gardens with the Vatican. But it was in conformity of the ambition of the Roman Emperors to have their statues erected on the summit of their monuments: witness the columns of Trajan and Marcus Aurelius, and the corresponding sepulchre of Augustus. The bronze pine would be a more appropriate ornament for some edifice in the gardens of Domitia, in which the mausoleum was erected. Moreover we have it stated by one of the ancient writers I have quoted, that there was the statue of Hadrian somewhere about the tomb. I have, therefore, in spite of some celebrated antiquarian architects, taken the liberty to place the statue of Hadrian on the top of his mausoleum. From the intimation we have of the ox-heads and festoons, and the inscriptions on the frieze, I have represented the basement as Doric; the first row of columns above would naturally be Ionic; and if the columns in St. Paul's Basilica were really taken from this tomb, they speak for themselves, and will justify us in exhibiting the upper row in the glory of the Corinthian. Upon these data and surmises, therefore, I have presented to you the mausoleum in its exterior, as I suppose it originally to have been; and we may safely conclude that it remained in all its pristine magnificence until the time of the Emperor Honorius, 402. Let us now go within. The spiral corridor, which leads from the entrance to the sepulchral chamber, was entirely excavated in 1820. Beginning from the original entrance facing the bridge, a lofty arch of travertine stone forms the ingress, and leads into a spacious vestibule. Opposite the position of the door of entrance there is a large niche, which no doubt contained the statue of the Emperor: a colossal head, now in the Vatican, and a hand discovered in the excavations, probably belonged to the said statue. In a compartment on the left side of the niche is a fragment of a cinerary vase of marble, with some letters upon it, which was lying there when I examined the interior of this monument in 1829. The spiral corridor, by which we now begin to ascend, is about 11 feet in width and 30 feet in height, built of the finest brickwork; the bricks 6 feet long; but the whole has been coated with precious marbles, as appears from the continual fragments still found, and the traces of them yet sticking to the walls. The ascent is not by steps, but by a gently inclined plane, winding round the monument, and showing specimens of the mosaic flooring still adhering to their original places. This wonderful passage was lighted from above by those openings called in Italian "abbaini;" they are cut through the massive covering in pyramidal forms. The light cannot enter by them now on account of the modern works of the fort, which lie over them; and hence this corridor can only be seen by means of torches at present. Pursuing this circular passage we ascend until we arrive where the modern staircase and the light of day meet us, and turning by an arch we come upon the sepulchral chamber. It occupies a space of about 25 feet square, and is lighted by a window at each side, which exhibit at the same time the immense thickness of the walls. Beneath the modern steps are found some cells with lateral niches; in the one on the left of the staircase the French consuls were imprisoned in the great revolution. The sarcophagus of black and white granite, now in the Museo Pio Clementino, together with the busts of Hadrian, very probably once occupied this chamber. We must not, however, omit to mention that the large bason of porphyry, which serves for the baptismal font in St. Peter's, and the porphyry urn which was taken from the tomb of Pope Innocent II., and several objects of equal value, all came out of the mausoleum. So that if we consider its marble lined walls, both inside and out, the mosaics of the floors, the beautiful columns which encircled its peristyles, the exquisitely finished statues which adorned the upper stories, the bronze figures which ornamented the basement and surmounted the dome, the alabaster urns and sarcophagi of precious marbles which this treasure house once concealed, it would be difficult to over-rate the magnificence and cost of this gorgeous monument, or to exaggerate the folly of the man who reared it for such a purpose. But the

imperial architect little dreamed the purpose to which posterity would put his proud sepulchre, nor to what strange vicissitudes he should be indebted for the perpetuating of his name and the celebrity of his grave.

The history of this monument does, in fact, become a history of Rome itself; and, perhaps, before I proceed to speak of it under the modern appellation of Fort St. Angelo, you may be interested in hearing the vicissitudes through which it has passed. From the time that it was joined to the city walls, A.D. 423, it may be considered no longer as a tomb, but as a fortress; and, after being frequently taken by the Goths, and retaken by the soldiers of Justinian, it was left in the hands of Narses the Eunuch, in 552, and afterwards transmitted to the Exarchs, who succeeded to power in Italy under the Greek emperors.

In the year 908 this citadel, for so I may now call it, is found in the possession of Albert, surnamed the Rich, one of the Counts of Etruria. This prince was admitted to a share of the fortress, by a Roman lady, Theodora, more illustrious for her extraction and power than for her chastity. Her daughter Marozia, more beautiful than her mother, but not more modest, kept the citadel as a place of security for her guilt, and at length she celebrated her nuptials in it with Hugo, called King of Italy, and she gave him up the whole for a dowry. It passed through several members of this family, in succession, until it reached Pope John XII., and then it was for the first time possessed by the Bishops of Rome, A.D. 956. They were masters of it for about twenty-seven years, until it was seized by Crescentius, upon the pretext of defending his consulship. He made entrenchments and outworks to it, in order to defend himself against the Emperor Otto III., who came to espouse the cause of the Pope; and, after a protracted quarrel of eleven years, it was finally recovered for Gregory V. It continued to be called, for a long time after, the Tower or Castrum of Crescentius.

During the succeeding ages, and again in the time of the troubles of Rome, which drove the Popes to Avignon, and comprising the career of Rienzi, last of the Romans, the fortress held a conspicuous place in history. But on the return of the popes to Rome, 1376, it fell into the hands of the French cardinals. Through these dark ages it was suffered to fall into decay, until Boniface IX. renewed the fortifications, after the designs of Niccolò di Pietro Aretino. After this it was taken by Ladislaus, King of Naples, but was again restored to Pope Martin V., 1431. But the first important additions of modern times were made by the famous or infamous Borgia Alexander VI.; he raised the round tower higher, and erected a bulwark of travertine stone between it and the bridge, almost as we see it in the present day. He also constructed the covered gallery, which communicates with the Vatican, about 3,000 feet in length. The arches under the gallery were made by Pius IV., and it was roofed by Urban VIII. Borgia just finished his work in time for his own personal security. On New Year's day, 1495, the King of France (Charles VIII.) with his army entered Rome by the Porta del Popolo, while Ferdinand, King of Naples, left it by the Porta St. Sebastiano. The pope, says Guicciardini, "pieno d'incredibile timore e ansietà," took refuge in the Fort St. Angelo, accompanied by Cardinals Orsini and Caraffa. Alexander VI. refused to give up the Fort to the French, in 1495, but the Pope Borgia sent four cardinals to treat with the French monarch, and succeeded in effecting a brotherly alliance. The Pope of 1848 sent three cardinals to treat with a French general, and as it appears, with equal success, for the Fort St. Angelo remains in the hands of the pope. The similarity which exists between those transactions, separated by a space of four centuries and a half, is most striking.

Pius IV. was the next pope whose works are worthy of notice; they were not confined to the fortress, but he enclosed the whole of the Vatican and brought his walls down to the Tyber, at the Porta St. Spirito, enclosing the old walls of the Leonine city. Finally, Urban VIII., 1644, completed the walls on the Transtevere, as we now see them, by drawing the line from the walls of Pius IV., and along the top of the Janiculum, and bringing them down to the river at the Porta Portese. Th

\* See p. 123, ante.



gate of St. Pancrazio and the bastions on each side, rendered so celebrated by the siege of 1849, were all the work of Pope Barberini Urban VIII., and as if anticipating a visit from the old friends of Italy, he appears to have made them much stronger than General Oudinot expected. It was this papal engineer who stripped the Pantheon of its bronze to melt down into cannons for defending the improved fortress of St. Angelo. I have purposely omitted all allusion to the assault of Rome by the Conatable Bourbon, and the bombardment of the Fort St. Angelo, with all the adventures of Benvenuto Cellino, in 1527, and when Clement VII. (Medici) took refuge in the fortress.

But having seen this fortress become the occasional residence of popes and cardinals since the revival of the arts, we shall naturally conclude that these dignified persons, who have no great antipathy to luxury out of Lent, would not be lodged in rude sepulchral chambers, nor shut themselves up within walls of peperine stone or naked brick-work. In a saloon in front, which communicates with the balcony facing the bridge, you have some pictures of Pierino Buonaccorsi, called Del Paga, a scholar of Raffaele; and in the balcony opposite are to be seen some of the designs of Girolamo Siccedante da Sermoneta. But these are not compared with the beautiful arabesques which adorn the ceilings of some of the other rooms.

I should be afraid to trust myself with a beginning of reflections upon the subject I have now finished, for I should be sure in that case to end with a sermon. I will only remark, that however our curiosity may be excited by the stupendous works of antiquity, and however our taste may be gratified by the enchanting powers of art, nothing really interests, either in history or description, but that which was founded for the benefit of mankind, and carried on through ages by the virtue of benevolence. Time is said by our poet to be the beautifier of the dead; but he has not traced a line of loveliness upon the ashes of the selfish emperor who reared this tomb for his own vanity. Time is said to be the adorning of the ruin; but time has but added deformity to the splendid mausoleum. It is some consolation to know that "glory, built on selfish principles, is shame and guilt," and it may be a moral lesson, not unworthy of the artist and of him who builds for posterity, to learn that whatever in the way of monumental grandeur is not associated with virtuous sentiments, or, as I should say, with morality and religion, will hand down no name to posterity with the reverence and respect, which the architect and the artist, not less than the statesman and philosopher, may lawfully seek to deserve.

RICHARD BURGESS, B.D.

#### ROYAL INSTITUTE OF ARCHITECTS.

THIS ordinary meeting of 18th instant was numerously attended, the paper of the evening, Mr. Smirke's, being one of an interesting freshness of subject, namely "On the Style of Ornamentation prevalent in the Assyrian Sculptures recently discovered, and on some Peculiarities of Assyrian Architecture as exhibited therein." Curiosity was doubtless further stimulated by an exhibition that was to follow, of some new instruments for describing the entases of spires or columns, volutes, and other curves adapted to architectural lines, by Mr. Jopling.

Previous to entering on the main business of the evening, Mr. P. C. Hardwick was elected a fellow, and it was announced that Earl de Grey had taken on himself the burden of providing the fifty guineas voted to the International Exhibition, thus generously settling at once the questions of bye-law and expediting on this point.

Mr. Smirke's paper entered minutely into the details of his subject, and contained many curious and striking allusions gleaned from scripture and from old historians, and comparisons with Egyptian, Greek, and other styles of ornament, sculpture, and architecture, deducing various interesting questions as to origin and affinity. The paper was illustrated by casts from the British Museum and drawings bearing on the ornamental details. As we shall probably recur in *THE BUILDER*

to Mr. Smirke's paper, however, we need not dwell further on its details, at present, than to observe that at the conclusion the speaker remarked, with reference to one of Dr. Layard's most recent discoveries, of a singular and unaccountable heap of valuables in the palace at Nimroud, that an ingenious pupil of his own had pointed his attention to a passage in Diodorus Siculus, on the fate of Sardanapalus, which appeared to shed a curious light, perhaps on these very discoveries. The passage in question relates to the funeral pyre in which all his valuables were collected together with his ladies and his eunuchs.

Mr. Donaldson referred to Le Brun's work published 100 years since, to show that the style of the Nimroud ruins was identical with that of Babylon, Susa, and Ecbatan; and he was of opinion that Dr. Layard's discoveries shewed but a section of a very extensive class of architecture and art spreading over a vast line of country in ancient times.

Mr. Bellamy (chairman) remarked that the arched form of one of the fortifications on the Assyrian sculptures seemed to indicate a knowledge of the principle of the arch.—Mr. C. H. Smith referred to the question, whether the Assyrian alabaster were, like the Egyptian generally, carbonate of lime rather than sulphate or gypsum. Dr. Buckland had regarded them as alabaster-proper, or sulphate, from their crystallization, but not from analysis.

Mr. Fergusson said, with reference to the suggestion made at the close of the paper, that in the most recent of Dr. Layard's discoveries the throne of the king had been found, with the rings of a curtain, and even gold threads, &c., of the curtain itself, and that the ornaments were perfect, which did not indicate that fire had destroyed the palace. Besides, it had been clearly ascertained that Nimroud was not Nineveh. Major Rawlinson was quite convinced of this. The site of Nineveh was pointed out, but not yet excavated. Mr. Fergusson then explained a peculiarity in the yoke and harnessing of a chariot on the sculptures, as quite well known, and still practised, in India. The honeysuckle ornament, or sacred tree of the priests, was also an Indian peculiarity. In reference to a point treated of by Mr. Smirke, Mr. Fergusson said that traces of the Greek Doric style appeared in Egypt from Nubia downwards, and that while he referred the Greek Ionic to Asia, the Greek Doric should be referred to Egypt for its origin.—Mr. Scoles differed a little from Mr. Fergusson. He had only found two instances of any thing like Greek Doric in Egypt, with very imperfect abacus.

Mr. Penrose, at the close of the discussion, exhibited Mr. Jopling's instruments, already referred to, with a few remarks on the advantages to be derived from them, and an illustration of their mode of use. It was while engaged in the endeavour to realize such instruments, that he became aware that Mr. Jopling had carried the subject to so great an extent and with such beautiful results. One of the instruments was merely a straight edge, tapering from one end to the other, and the bar of a trammel with a fixed peg and a moveable one. The bar, while crossing the straight edge and guided by the pegs, one at each of the tapering sides, and drawn along, gradually altered its cross-angled position with relation to the straight edge as it went along, and traced the resultant curve with a pencil at one extremity. Another instrument, describing a portion of the volute, which it also completed by repetition of the process, consisted simply of a piece of wood, to each end of which one of the usual pin-points was attached by the thread ordinarily used, the wood or pencil-holder thus standing in the place of a portion of the thread itself, and in turning forming the curve.

The chairman said the instruments seemed to possess very great merit: they were both new and important.

THE COMMISSIONERS OF INQUIRY INTO THE MARKET OF SMITHFIELD and the other markets, for the sale of live and dead meat in the metropolis, will make their report immediately after the Easter recess.

ROYAL SCOTTISH ACADEMY.—Mr. John Watson Gordon, A.R.A., has been unanimously elected president, in the place of Sir William Allan, deceased.

#### ABOLITION OF THE BRICK DUTY.

THE Chancellor of the Exchequer made his financial statement on Friday, the 15th inst., and in the course of it, after expressing his anxious desire to improve the dwellings of the poor, said it was impossible, under the present system, to procure those comfortable cottages for the labouring classes which all would desire, no remunerative interest could be expected by those who built them, and the Government thought it right that no legislative obstacle, at any rate, should be imposed on those who might think of doing so. Seeing that the evil was not confined to the cottages of the poor, but that the health of towns and cities was deeply affected, he was prepared to concede the total repeal of the duty on bricks. He found that the subject had also occupied the attention of that Committee of the House of Lords whose report stated that not only would such a repeal tend to the improvement of real property in towns, and their immediate vicinity, but add considerably to the comfort of the poorer classes. The announcement was received with loud cheers. The abolition of this duty cannot fail to set industry in motion and otherwise effect much good. We are proud of having assisted in ever so small a degree to bring it about.

There is but one drawback at present to our satisfaction, namely, the position of the present stock of the brickmakers with respect to drawback itself. A large and influential meeting of makers was held at the London Tavern, on Wednesday last, after which a deputation, composed of Messrs. Heron and Rutter, Mr. Lee, Mr. Bennett, Mr. Everest, Mr. Hunt, Mr. John Rutt, Mr. Rhodes, Mr. Bird, Mr. Clark, Mr. Kingsnorth, and Mr. Pocock, brick manufacturers, and Lord Robert Grosvenor, Sir Thomas Birch, and Messrs. Cardwell, Osborne, Patten, Greenall, Brockman, W. Cubitt, and Beckett, members of Parliament, waited on the Chancellor of the Exchequer, who was unwell, but had deputed Mr. Hayter, secretary to the treasury, to hear the deputation and report. After some discussion, however, three members of the deputation, Messrs. Cubitt, Holmes, and Heron, were invited to wait personally on the Chancellor, who, after a representation which continued for upwards of half-an-hour, admitted the hardship of the case, and was much disposed to meet it by "some sort of compromise." We earnestly hope that the grace of a boon so likely to lead to extensive and general good, will not be marred by any injustice or injury to individuals.

#### THE INVENTORS OF THE PORTSMOUTH BLOCK MACHINERY.

ON comparing the statement of "N. R." with official documents, it appears (as was from the first well known to the Lords of the Admiralty) that the several parts of the block machinery at Portsmouth were invented by different persons, and successively introduced. The friction rollers claimed by "N. R." as the invention of the Messrs. Taylor, not being employed in the Portsmouth machinery, it seems needless here to discuss that claim.

The circular-saw appears by "N. R.'s" statement to have been devised by one of the Messrs. Taylor; and though as fitted up by them it was only in its most simple state, yet as this tool has since been found applicable to a great variety of purposes, the invention of it is alone sufficient to place these gentlemen high in the list of benefactors to the mechanical arts.

Justice was long ago done to the Messrs. Taylor by the late Brigadier-General Sir Samuel Bentham as to their having been early in the application of machinery to the working of wood. He stated officially that in the year 1791, excepting some turning lathes, the circular and reciprocating saws, and some boring tools applied by these gentlemen in making blocks for the navy, no other machinery was then in use for the working of wood.

It was in consequence of this great deficiency of machinery for working wood, that Sir Samuel applied himself to the perfecting various engines he had invented whilst in Russia, and patented his contrivances November 26th, 1791, and 3rd April, 1793. The specifications



of these patents *class* the several operations requisite in working wood to any form required, straight or bevelled, and describe machines by which these several operations may be performed; amongst them perhaps all that are necessary for the production of a finished block. Circumstances irrelevant to the present subject induced him to have various of his machines made, and put to actual work at his brother's residence, among which were some of the *identical* machines afterwards forming part of the general system of block machinery at Portsmouth. The then First Lord, and other Lords of the Admiralty, visited these engines when in operation in the year 1795, and, convinced of the advantages that would result from their introduction into naval arsenals, induced Sir Samuel to re-engage in the naval service as Inspector-General of Naval Works. Amongst other articles then intended to be manufactured on Government account were blocks. By degrees many of these machines were removed from his residence to Portsmouth and Plymouth dockyards, such as his apparatus for boring, mortising, cutting of grooves and tenons, as also reciprocating saws, with his new apparatus for giving them motion in different directions, and circular saws with his improvements, including machinery that enabled them to cut at pleasure to any desired depth, or at any desired angle. The Lords of the Admiralty, during their visitation of the dockyards in 1802, inspected some of these machines when at work, as is recorded in their "Minutes of Proceedings," page 45.

It was in the same year, 1802, that Sir Isambard (then Mr.) Brunel presented himself, unknown and unrecommended, with drawings of his block machinery, to General Bentham. The drawings exhibited "at that time embraced only some of the operations requisite in forming the shells of blocks," but "they exhibited great ingenuity and mechanical skill." The inspector-general's time happened to be fully occupied, at the first lord's desire, in matters of general management, so that, after much inquiry respecting Mr. Brunel, Sir Samuel mentioned to Lord St. Vincent Mr. Brunel's invention, and advised that gentleman to propose his machine to the Admiralty: on receipt of the proposal the Admiralty board referred it to the inspector-general "to consider and report what in your opinion may be proper to be done thereupon."

The general, in his report, 15th April, 1802, said "he was convinced that the invention is well suited to the purpose of manufacturing blocks with a degree of accuracy, uniformity, and cheapness beyond what can be expected from the *modes hitherto in use*." Mr. Brunel's machine was in consequence adopted, and he was directed by their lordships to concert with the machinist in the inspector-general's office as to the best mode of fixing up the different engines and apparatus, so that it "should combine with the apparatus *already provided*, or which it may seem advisable to erect, in that dockyard." General Bentham was charged with the examination and approval of the several drawings of proposed machines, and with the responsibility, as well, of checking all payments for them.

From this time the inspector-general and the machinist united with Mr. Brunel in endeavours to render the whole apparatus for making blocks as perfect as possible. Several of Sir Samuel's machines already in the dockyard were employed as part of the block machinery; and, with a view to engage public opinion in favour of machinery, he gave a preference to that for block-making, as it was susceptible of a pleasing arrangement.

But it is time to particularize the several block machines, so that each inventor may receive due acknowledgment of his skill: this may best be done by reference to the several operations requisite for the formation of a finished block, and by making use of the descriptions and drawings of the Portsmouth block machinery as given in Ure's Dictionary, but in which, however, the invention of the whole of it is ascribed to Mr. Brunel. It seems almost a needless repetition to say that the simple circular saw was invented by the Messrs. Taylor.

The several operations in forming a block shell are—

1. To cut out the shell to size from the rough log.—Described article 1. of Ure—"The

straight cross-cutting saw, and the circular cross-cutting saw." These saws were amongst the machinery from General Bentham's that were inspected by the Lords of the Admiralty in 1802: the first articles of Mr. Brunel's machinery did not arrive at the yard till 15th April, 1803. These reciprocating saws were fitted up with General Bentham's machinery for insuring precision in the work done by them, and the circular saws were with his contrivances for enabling them to cut at pleasure to any angle, or to any depth.

2. To bore for mortising and pin-hole.—Messrs. Taylor used boring machinery. That employed at Portsmouth appears to have been General Bentham's improved borers, by which the tool was directed as might be required, whilst the wood was held firmly in its place at the required angle or height. Mr. Brunel probably made some alterations of this engine to suit it particularly to the boring of block shells. The machine at Portsmouth differs from Mr. Taylor's in the important particular, that, at Portsmouth, the block is confined precisely in the required direction to receive the borers, besides that holes are bored in different directions at one and the same time.

3. To mortise.—This, too, is an adaptation of General Bentham's machine to the particular purpose of mortising a block shell.

4. To cut off corners.—Fig. 132, Ure's Dictionary. It is the improved circular saw of General Bentham. The improvement in this instance consisted in his invention of an apparatus by means of which the saw cut accurately, at pleasure, to any desired angle, or to any required depth. It is represented, however, by Ure, as fitted only to cut at one particular angle.

5. To shape.—This operation was performed by hand in Messrs. Taylor's factory. Mr. Brunel invented the shaping machine: it is amongst the most important of his contrivances, on account of the accuracy and uniformity given by it to block shells, over and above great savings of expense.

6. To score.—Fig. 133 of Ure. Done by hand at Messrs. Taylor's factory. The engine for performing this difficult operation was of Mr. Brunel's invention; it insures perfect accuracy in this important part of the shell.

#### SHIEVES.

1. To cut off slices of lignum vitæ to the required thickness.—A combination of the saws above mentioned arranged for this purpose by Mr. Brunel.

2. To bore and round.—Performed at Portsmouth by means of an ingenious machine of Mr. Brunel's invention. Fig. 134 of Ure exhibits the *crown* saw, and the other apparatus as contrived by Mr. Brunel.

3. To prepare for coque.—Done by hand at Messrs. Taylor's; at Portsmouth by a machine of Mr. Brunel's invention. By this engine three semicircular indents are excavated round the hole at the centre of the shieve; by the accuracy thus given to the bed for the coque it exactly fills up the indent, so as to prevent its former looseness in the shieve.

4. To drill for rivets.—Brunel.

5. To rivet.—This little tilt hammer affords an instance of the combination of endeavours to perfect the whole apparatus. Riveting was at first done by hand at Portsmouth, but when the inspector-general was one day examining the works, it was observed that the strokes of the hammer as given by the boy were irregular, and a tilt hammer was suggested in lieu of the hand. Mr. Brunel immediately adopted the idea, and introduced the tilt hammer with a suitable band for working it.

6. To broach according to size of pin.—Brunel.

7. To turn and polish.—The ordinary lathes of block-makers.

#### PINS.

They were for some years obtained from Sheffield at less cost than they could be manufactured for in the dockyard. Subsequently the inspector-general caused a blacksmith's shop to be fitted up for convicts' use in the floating-dam of the basin, from which time the pins were forged by convicts, and afterwards turned and polished by machines of Mr. Brunel's.

#### FINISHING THE BLOCK.

Putting the shieve and the pin into the block shell.—By hand: this being the only operation for which suitable machinery is not provided at Portsmouth.

Mr. Brunel, by attention to the parts that

had failed, of condemned blocks, perceived where additional strength was required, and provided for giving it; thus the ends of the shells, where they had so frequently split, he made thicker than theretofore; the iron pins he coated with tin, to prevent rust; the coques were of a mixed metal, greatly improved in quality after much investigation by the inspector-general, Mr. Brunel, and Mr. Maudsley. These and many other improvements tended to the greater durability of blocks. Indeed, after the time when the Portsmouth-made ones had come into general use, it was found that the consumption of them had greatly diminished in proportion to the number of vessels in commission. This was, in part, consequent on the improvement of the blocks themselves, but still more, it was confidently affirmed, on the uniformity and accuracy with which the blocks were made by the Portsmouth machinery,—inimitable but by other such machinery—so that the form and finish of these blocks proved far better security against embezzlement than the king's mark had ever been.

The machinery necessary for giving motion to Mr. Brunel's apparatus was devised in the inspector-general's office, Mr. Brunel "having had a considerable share in its contrivance."

As to pumps, and many other articles included in the block-makers' contract, they were manufactured from the year 1805 in Portsmouth-yard by means of the sawmills, lathes, and other engines erected there according to the inspector-general's plans.

"N. R." attributes the discontinuance of Mr. Taylor's contract to the cessation of his patent. It expired, however, in the year 1790, consequently ten or eleven years before there was question of Mr. Brunel. In point of fact, Mr. Taylor's contract continued till the year 1805.

"N. R." further states, that Mr. Taylor's claim to the invention of the Portsmouth machinery was insisted on during Sir Isambard Brunel's lifetime, and never denied. In looking over all the official correspondence on the subject, and numerous private papers, it does appear that Mr. Taylor had represented that "no saving could result" from the Portsmouth block machinery; a saving, however, did result from it, of above 16,000*l.* a-year: "that it never would be found competent to the supply of the navy;" but during the heat of the war it did not only supply the navy, but also all the demands of the Ordnance department: that the hopes of the sufficiency of that machinery were "the sanguine but groundless expectations of a visionary projector;" yet amongst these and similar representations no hint even is to be found that either Mr. Walter Taylor or his father had been the *inventors* of the Portsmouth block machinery. Mr. Taylor was well known to be adverse to it; yet from the year 1803, when it was officially announced that Mr. Brunel's remuneration was to be a-year's savings made by his machinery, to the year 1810, when the amount of these savings was calculated and awarded, not on any one occasion can it be found that Mr. Taylor ever urged, as against that remuneration, either his own or his father's previous invention of that machinery,—though, had it been so, such a claim would have been examined into, and if found just, would have afforded legitimate reason for giving remuneration to Mr. Taylor, and for either withholding it altogether from Mr. Brunel, or for according to him only such an amount of money as might have been equivalent to savings produced by his improvements of Mr. Taylor's machinery.

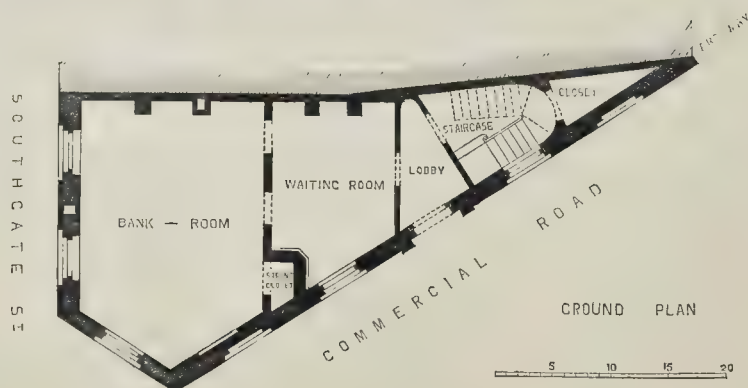
For particulars as to Mr. Brunel's remuneration see *Mechanics Magazine*, No. 1376, page 592, in which it appears that Sir Samuel Bentham, in speaking of his own machinery used in the block-making apparatus at Portsmouth, had expressed himself "satisfied that Mr. Brunel had skill enough to have contrived machinery to have answered the same purposes, had he not found mine ready to his hands."

PORTRAIT OF THE LATE MR. ELMES.—Agnew, of Manchester, has just now published a portrait of the late H. Lonsdale Elmes, architect of the new Assize Courts, Liverpool. It is nicely engraved in the mixed style, by Mr. T. O. Barlow, from a painting in the possession of Mr. Rawlinson.



## GLOUCESTER SAVINGS BANK.

MESSRS. HAMILTON AND MEDLAND, ARCHITECTS.





HEREFORD AND GLOUCESTER.  
GLOUCESTER SAVINGS BANK.

HEREFORD Cathedral, which has been closed for a long period of time for restoration under the guidance of the late Mr. Cottingham, was opened in part a few days ago for Divine service. We passed through the city last week, and looked into the building. The nave is completed, and here the temporary arrangements have been made for service,—a screen having been erected at the junction with the transept. The lower part of the nave, as some of our readers will remember, is Norman (the work of Bishop Robert of Lorrain, commenced 1097, and finished 1115), and the upper part is Early English. The whole of the stonework here has been made perfect,—much of it being entirely new. The nave is paved with black and red tiles in patterns; and the vaulting, which is of plaster, some of the miserable work of Wyatt, has been decorated with colour, in a manner not commensurate with the greatness of the work in hand. This decoration consists of brown scroll-work with medallions somewhat coarsely executed. The vaulting of the aisles is also painted, and with better effect. The ceiling under the tower, at the *cruz*, not included in the part opened, is decorated in blue and gold.

The transepts and choir are in a miserably ruinous state, and give some notion of the extent of the work which must have been done in the nave. The exquisitely beautiful Lady-chapel and parts about it have been thoroughly restored externally: the new gable crosses here are over large.

At Gloucester a new savings bank has been completed, and we give a view of it, not because it possesses any remarkable feature, but as serving to show our readers what is going on in the provinces. It was commenced May 1, 1849, from the designs of Messrs. Hamilton and Medland. The total outlay, about 1,350*l.*, has been defrayed out of the separate surplus fund accumulated by the local trustees and officers, and previously invested with the Commissioners for the reduction of the National Debt.

The building stands at the commencement of the Commercial-road, which has been opened at a great expense by the enterprise of several gentlemen to afford a better communication with the docks, and occupies a commanding position in the city. The material is stone. The difficulties of the site (which is in form a scalene triangle) has been ingeniously overcome, and accommodation provided for the requirements of the bank and the residence of the actuary.

The builder is Mr. W. Wingate, of Gloucester.

The new walls of St. Michael's church, Gloucester, in progress of rebuilding, are now beginning to show above the board.

Plans were invited in competition, a short time since, for the Gloucester and Bristol Diocesan Training Institution for Mistresses. Eleven sets were sent in, by eight architects, and from these the committee have just now selected a design by Messrs. Clarke and Norton. It consists of a training college for the education of 75 mistresses, attached to which is a matron's residence, and connected by means of an open corridor is a chapel to accommodate 150 persons: two quadrangles occupy the centre of the site, and by means of covered ambulatories, lead to a group of three large practising schools, altogether accommodating 360 children—girls, infants and children of yeomen. The style adopted is, as we are told, that of the 14th century.

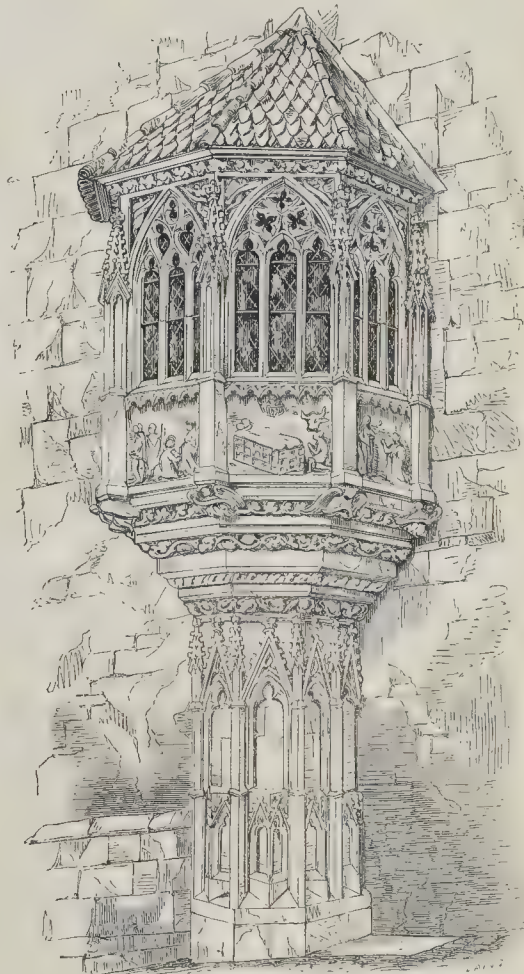
At Hucclecote, on the road from Gloucester to Cirencester, the first stone of a new Early English church was laid a few days ago: the architects are Messrs. Jacques and Son, and the builder Mr. Charles Niblett, all of Gloucester.

**CARVED OAK FITTINGS, CONSUMPTION HOSPITAL.**—Annexed are some carvers' estimates for the oak fittings for the chapel of the Consumption Hospital at Brompton; Mr. E. B. Lamb, architect:—

Philp and Co. ....	£606
Carving Company .....	582
Thomas Burton .....	446
James Rattee .....	400
Samuel Pratt .....	386

## ORIEL WINDOW, NUREMBERG.

[CIRCA 14TH CENTURY.]



## ORIEL WINDOW, NUREMBERG.

THIS rich oriel forms part of the clergyman's house belonging to the church of St. Sebald; the date of its erection cannot be precisely stated, but it probably belongs to the latter part of the fourteenth century, as the character of the detail is very similar to that of the Schönebrunnen in the market-place, erected about 1360. The sculpture in the spaces under the window lights represents some of the remarkable events in the life of our Saviour. The introduction of sculpture is, perhaps, rather characteristic of this town, which contains so many fine examples of the sculpture of the middle ages. The tiled roof is probably not original,—it was, very likely, covered with copper, which was frequently used in such a case,—as in the beautiful example of the "goldene dach" (golden roof) at Innsbruck. C. F.

**LICENSED VICTUALLERS' ASYLUM.**—A new chapel is to be added to the centre of the present building; also a board-room, 35 ft. by 25 ft., court-house, and four additional houses,—the whole to cost about 3,300*l.* Mr. Rose is honorary architect.

**THE IRON TRADE.**—Prices have still a downward tendency, and the hopes of the masters are still as far from realization as ever.

## ARTICLED CLERKS AND THEIR MASTERS.

WE continue to receive letters from architects' pupils complaining of want of opportunity to acquire their profession. Following up the first lament, another couple thus write:—We read with great interest the "Lament of Two Articled Clerks," which appeared in your columns, and, from its close resemblance to our own case, we fully sympathize with our professional brethren, and rejoice that they have so successfully exposed the treatment to which we, as a body, are subjected. We were glad to find that we had a valuable friend in you, and have no doubt that, should the subject be brought into notice through the medium of your journal, the evil will, in a great measure, be removed. What we particularly complain of is, that no opportunity is afforded us of seeing the plans and specifications prepared in the office carried out,—that seems to be considered quite unnecessary by our masters, if, indeed, they have ever given it a moment's consideration, for all interest in us apparently ceased on the day on which our articles were signed and premiums paid, for this appears to be the main object with many architects.

In the case of a building of a public character now just completed, on a new principle, we only visited it twice, once during the progress of the works, and once after roofing in.



If "ignorance is bliss," we are in a blissful state, indeed, for, with respect to the practice of surveying and measuring artificers' work, we know nothing of it. What we know of the theory has been gleaned from books; although both our masters (for we should have mentioned that we have to serve two) hold public appointments as surveyors.

Now, Sir, is this teaching us the profession on which we shall depend for our subsistence? When our period of slavery expires, what are we to do? Shall we be able to earn even bread and cheese? or shall we not be compelled to follow a method which, from its constant adoption, shows the extent to which this abominable system is carried, and advertise to the effect that we shall be glad to offer our services in return for the advantages to be received?—T. and C.

Amongst other letters on the subject, we have a semi-serious epistle in reply to the "Lament" from "one plagued with two pupils, who, if not A B and C D themselves, are as unreasonable."

There are many persons (he writes), who, not caring what the Dickens Pecksniff is thought of by the profession, are only anxious to get for their children the privilege of saying that they have been in an office of respectability (you see, Sir, I say nothing of reputation), there is no inquiry on the part of the parents as to whether the future master is competent to teach at all, and if so, what he is most able to teach, the only inquiry is what is the lowest amount of fee? and the shortest term?

Now, Sir, you know as well as I do, that even a small sum is not to be thrown away in these times, and that for this professional men do endure the presence of these called pupils; and may even endeavour to keep them from committing actual mischief, as fencing with tea-squares, and standing on each other's heads, by giving them that sort of employment in which they are least likely to make irretrievable errors. The first men of the day, both architects and engineers, cannot possibly have leisure to teach, though receiving from 500 to 1,000 guineas with their pupils, and indeed I find that now these great people say, "Your son may come into my office, and also may ask me any questions he likes, but I can undertake nothing more." Sensible readers may determine who is the greatest sufferer, the master or the pupil.

A. B. and C. D., supposing them to be my plagues, complain that I do not belong to the classic style; well, their parents, for themselves, know that for the last ten years I have had no occasion or opportunity to work in any but the Gothic styles. As to explaining differences, do they read for themselves? They allow that they have drawn the Orders, Ionic volutes, &c., and in that &c. is comprised all that has ever been taught in some of the most classic London offices since the year 1800. They say that they have now and then a specification or bill of quantities to write out; well, Sir, in my time of apprenticeship such things were very rarely allowed to go into the office, and even now, I believe, the rule is pretty strictly observed, especially by the engineers. As you will observe, they do not pretend that they have ever sought for information from me, or from any course of private study out of the office. Why, Sir, fourteen hours a-day sometimes, twelve I may say always, did I work for my elementary education. Let them try the same course; and being able to show that they are doing their part, their parents or guardians may justly call on their master to do his.—Y. Z.

**EXHIBITION OF WORKS OF MEDIEVAL ART.**—The exhibition of works of mediæval art, now open to the public, at the Society of Arts, in the Adelphi, should not be hastily glanced at, but examined thoroughly, when it will be found not "a mere goldsmith's shop," as we heard a respectable country gentleman term it, but a collection of gems of art, presenting to the modern executant an evidence of how much he has yet to do,—to the amateur the means of correcting his judgment,—and to the archaeologist materials for study. Such an assemblage of rare things of the kind has never before been seen. A very full catalogue has been prepared, but the mode of numbering the objects gives much trouble to the visitor.

#### MEETING AT KENSINGTON FOR THE EXHIBITION OF 1851.

On Wednesday evening a meeting was held at the King's Arms, Kensington, to promote the objects of the forthcoming exhibition. The meeting was convened by Archdeacon Sinclair (the Vicar of Kensington), in consequence of a requisition most numerously signed; and

The Right Hon. W. S. Lascelles, M.P., took the chair on the introduction of the vicar, and opened the proceedings in a few observations indicating the advantages to be expected from the exhibition.

Resolutions were proposed, and carried with enthusiasm, expressive of the feeling that the arts and sciences, agriculture, manufactures, and trade, would be greatly promoted by the plan proposed; and that its extension to the products of all nations would tend to maintain the blessings of peace. A local committee, consisting of Lord Holland, the Chairman, the Vicar, the Hon. Mr. Curzon, Messrs. Cope, Creswick, Horsley, Mulready, Redgrave, Webster, and Wyon, of the Royal Academy, Mr. Thackeray, Mr. Planché, and other residents in the locality, was appointed.

The meeting, which was remarkable for its unanimous appreciation of the benefits to be derived from the exhibition, especially in promoting art-education amongst operatives, was addressed by the following gentlemen, who moved and seconded the various resolutions:—Lord Robert Grosvenor, M.P., Mr. Hawks, Mr. Milner Gibson, M.P., Mr. G. Godwin, Mr. H. W. Vincent, Mr. J. Macgregor, M.P., Dr. Waddilove, Captain Hood, Mr. Redgrave, R.A., the Hon. Mr. Curzon, &c. Mr. Barber, of the London Committee, referred to the successful progress of the subscription there; and the meeting was also addressed by some representatives of the working classes of the parish, who expressed great interest in the matter.

#### THE PLANS FOR THE DRAINAGE OF LONDON.

On the 15th inst. the report of a sub-committee, consisting of Sir John Burgoyne, Captains Harness and Vetch, and Messrs. Stephenson and Rendell, appointed to examine the plans sent in for the drainage of the metropolis, was considered at a special meeting of the Sewers Commission. The report set forth that the want of necessary information for competitors was evident in the schemes, and that the committee had made every allowance for this disadvantage. They distributed the plans under the following divisions:—

"1. That which may be designated as the portable cesspool system, by which it is proposed that each dwelling-house should be furnished with a portable iron or other vessel, or receptacle, for fecal matter, which is to be periodically removed to depôts situate in the suburbs of the metropolis, whence it is to be distributed in the form of manure for the purposes of agriculture. It is an essential condition of this class of schemes, that as little water as possible should be allowed to mingle with the solid sewage matter, in order that its fertilizing power should not be diminished, and that its augmented bulk should not oppose obstacles to its convenient removal and transport.

2. The schemes included under this division contemplate the discharge of the whole drainage of London into the Thames, and the maintenance of the present system of outlets, though under improved conditions. The projectors contend that the river is the natural and only legitimate outlet for the sewage of the metropolis, and place reliance upon the effect of an increased supply of water, so abundant as to ensure so almost uninterrupted current in the sewers, by which it is assumed that the sewage matter will be extensively diluted, and its effect upon the vast body of tidal water rendered scarcely perceptible. It is also a distinguishing feature of the schemes that the outfalls of the sewers are intended to be carried out to or beyond low water mark, and generally into the river.

3. The authors of the projects included in the third division propose to lay down tunnels or culverts of iron, bricks, or other material, in and along the mud banks of the Thames, and occasionally in or under its bed, for the purpose of intercepting and receiving, at the various outlets of the existing sewers, the drainage of the districts on each side of the river. These culverts or tunnels are generally continued to the marsh grounds, in the county of Essex, beyond the River Lea, on the north side of the Thames, and to Planstead marshes on the south, at which points reservoirs and filtering-beds

are to be found for preparing and rendering portable the sewage matter for manure.

4. The fourth division differs from the preceding one in this particular, that, instead of having a single intercepted sewer at the lowest level, it proposes several of such sewers at progressive ranges of altitude, determined by the various drainage areas, with the view of preventing the refuse of the higher portions from descending to and encumbering the flat districts below. In the great majority of these projects these lines of intercepting sewers are conducted to points in the marshes, in the east of London, at a lower level than low water, in consequence of which it becomes necessary to employ steam-power to pump up the refuse.

5. The fifth division involves the establishment of cesspools at the outlets of the principal sewers along the banks of the Thames, it being the intention of the framers of this class of plans to unite several of these outlets into one, according to the conditions and requirements of particular localities, and at these points of union or concentration to erect pumping apparatus of great power for conveying the sewage matter into the rural districts, either through iron pipes, or by means of carts, barges, or other modes of transport.

6. This class has for its object the division of the metropolis into separate drainage areas, in the centres of which it is proposed to form sumpts or pits for the reception of the sewage matter, from which it is intended to be pumped and distributed by various methods, for the most part similar in character to those adopted in the case of the schemes described under the last division.

7. This division includes a numerous class of projects, which, with scarcely an exception, instead of being directed to the object of making provision for an improved system of general sewerage, are almost exclusively confined to the consideration of processes and expedients for inflating, deodorising, and solidifying the sewage matter for the purposes of the farmer and market gardener.

In addition to schemes involving definite characteristics and susceptible of some species of classification, numerous communications have come under our notice, which may for the most part be described as vague, speculative, disquisitions, or collateral and subordinate branches of the general subject of drainage, few of which can be said to possess any practical value. It is observable that the great majority of these schemes adopt as an essential principle the diversion from the Thames of the greater mass of London sewage matter now discharged into it, an object which it appears to us most desirable to accomplish to the greatest practicable extent. We also assent to the views of those who are opposed to the separation of surface and house-drainage. We think it objectionable generally to bring down the drainage of the high grounds to the lower districts, and we agree in the opinion that it is of permanent importance to make every effort for accomplishing the drainage of London by natural means, that machinery should not be employed generally or on a large scale, and that it should only be resorted to in the last instance, and under special circumstances, as in the case of detached and insulated districts, limited in extent, and so situated as to render it a matter of undue difficulty to unite them with others."

They proceed to say that,—

"The best conceived and most practical scheme submitted to the commissioners is, in our opinion, that of Mr. J. B. McLean; and, though we do not deem ourselves justified in recommending any one of these schemes for adoption, as a whole, we yet think that Mr. McLean's plan contains many of the main elements of a sound and judicious system of drainage. It is characterised by a well-devised system of intercepting sewers, in determining the situation and course of which a careful and elaborate study of the levels has evidently been made. These intercepting sewers generally follow the direction of the main thoroughfares, and avoid any extensive interference with private property."

The chief of them on the north side of the Thames commences near Battle-bridge, and, after running a course of nearly eight miles, terminates at the river Thames, at some distance below the river Lea.

There is, however, one portion of the metropolis, namely, the long, narrow tract lying on the north margin of the Thames, between Charing-cross and Shadwell, for which sufficient provision does not seem to be made. It is not made apparent whether it is proposed to resort to pumping for the drainage of this part of London; but, with regard to a large proportion of the tract in question, no other expedient would seem to be applicable. The lower districts of Westminster are treated in a somewhat peculiar manner, namely, by carrying an iron syphon across and underneath the Thames, above Vauxhall-bridge.

This portion of the scheme involves great difficulties, and we consider it decidedly objectionable; but it must be borne in mind that it proposes to deal with the drainage of Westminster (confessedly a difficult subject) without the aid of a pumping



apparatus or a deep tunnel, or of a discharge into the Thames as at present."

They mark out four other plans as possessing an amount of merit in individual portions of it justifying a special notice of them; namely, the plans of Messrs. Nasmyth and Statham, Mr. J. Bayley Denton, Mr. J. Phillips, and Mr. H. Austin.

To all these they advance objections, and then say—

"Several other schemes evince merit in some portion of their details, and furnish useful hints on incidental branches of the subject. The schemes we allude to are those of

Mr. Allen,	Mr. Moffatt,
Mr. Bardwell,	Captain Moorsom,
Mr. Dorell,	Mr. Netherway, and
Mr. Dunn,	Mr. H. Phillips."
Mr. Gibbs,	

The estimates sent in with the various plans they consider, "with scarcely an exception, totally inadequate."

The report having been received and adopted, it was resolved, on the motion of Sir Henry De la Beche, seconded by Mr. Sheriff Lawrence (on the part of the city) from whom the suggestion emanated,—

"That it be referred to a committee of the whole body of commissioners, to adopt such measures as may be considered expedient for the drainage of the different portions of the metropolis."

#### NEW SCENERY AND PANORAMIC VIEWS.

*Her Majesty's Theatre.*—The ball scene in the new ballet, *Les Metamorphoses*, displays some of Mr. Marshall's clever Hispanio-Moorish architecture as a foreground, with a brilliant festal illumination, and a chateau rising prominently from its terraces in the background. It is painted with the skill and knowledge of effect which he has given evidence of in greater works. The ballet itself is very pleasing.

*The Royal Italian Opera House.*—The Wolf's Glen, by moonlight, the scene of the incantation in the opera of *Der Freischütz*, now being played at the Royal Italian Opera House, Covent Garden, is a grand painting, as well worth paying for, to see, as any panorama now exhibiting. It represents a deep ravine, bridges stretching from side to side connecting the mountains, and over the whole is at first shed a moonlight perfect in tone. The opera is performed in a most excellent manner; the overture was, perhaps, never so played before.

*At the Lyceum Theatre* the amazing success of the "Island of Jewels" (the excellence of which we mentioned when first produced) admits of nothing new for us to note.

*The Diorama, Regent's-park.*—The new view here is of the well-known Castle of Stolzenfels, on the Rhine, situated about an hour's drive from Coblenz, and it is shown under various striking effects of light. It is painted by Nicholas Meister, of Cologne, and well deserves a visit. A violent rain storm, such as often comes on suddenly in that romantic locality, is represented so as to give an impression of reality almost disagreeable,—especially if you have no umbrella with you.

*Her Majesty's Visit to Ireland.*—At the Chinese Gallery, Hyde-park-corner, there is an interesting moving diorama, representing some of the places visited and scenery passed through by the Queen; painted from sketches made on the spot by Mr. Philip Phillips. It is generally exceedingly well painted, but would be greatly improved by more light. We would suggest to the artist to see what Mr. Leslie has done in the way of lighting, at the Exhibition of the Britannia-bridge, in Regent-street.

*Tavern Decorations.*—A billiard-room at Gorton's in Old Bond-street, has been decorated with a series of subjects, in encaustic, by Mr. E. F. Lambert, having reference to the business of the house,—such as "Bacchus and Ariadne," "Hebe," "Jupiter's Cupbearer," "The Suttler's Booth," &c., not without merit.

**FIRE AT WESTMINSTER.**—The saw-mills, joiners'-shops, and other premises of Messrs. J. and C. Rigby, of Holywell-street, together with a number of adjoining tenements, were destroyed by fire on Saturday last.

#### Books.

*Railway Economy: a Treatise on the New Art of Transport, its Management, Prospects, and Relations, Commercial, Financial, and Social. With an exposition of the practical results of the Railways in operation in the United Kingdom, on the Continent, and in America.* By DIONYSIUS LARDNER, D.C.L., &c. Taylor, Walton, and Maberly, Paternoster-row.

DR. LARDNER sustains his literary reputation by this new production, which appears to be the most comprehensive and diligent compilation yet made of all that relates to railway economy, although even in this a little research enables us to observe the incidental omission of a fact of some importance. The work, however, certainly forms a great compendium of interesting and important matter, written in a style excellently well adapted to miscellaneous public perusal, and ought to be in the possession of every shareholder, and of all, indeed, in any way interested in railways. It also embodies a good deal of information on roads and transport in general, both ancient and modern. The typographical aspect of the work is unobjectionable, the whole being clear and readable, and the paper good. A very full and useful table of contents, and a separate index, accompany the work.

*Hints to all about to rent, buy, or build House Property.* By FRANCIS CROSS, Architect. Nelson, Paternoster-row.

THE object of this little work is sufficiently indicated in its title. That it is full of useful hints and valuable information may well be allowed, since we find it, for the most part, an embodiment of matters scattered through the leaves of *THE BUILDER*,—some little general acknowledgment of which might, we think, have been made in some quiet corner of the contents. Good use, however, has been made of the material, and some discrimination displayed in setting it off into an instructive little exposure to the public mind of all the hints and recommendations necessary to render him who reads them very knowing, indeed, in all that relates to house property,—enabling him, in reality, to see much further through a brick wall than he can have ever done before.

#### Miscellaneous.

**THE ART-UNION OF LONDON.**—Crowds have been rushing into the office in the Strand during the last two or three days to obtain the engraving of "Sabrina," the delivery of which began on Monday last.—MacIise's fine illustrations of "The Seven Ages" are all engraved, and in progress of printing.—A medal in honour of Banks, the sculptor, has been determined on.—The council have selected a fine antique tazza from the British Museum to be produced in cast-iron.—The bas-relief of Christ entering Jerusalem has been very successfully engraved by the ruling process (or anaglyptograph), and is ready for press.—Some time ago Prince Albert directed the council to have prepared for him a set of the bronzes and statuettes which have been issued by the Art-Union. This has been done, and last week one of the officers of the society accompanied them to Buckingham Palace, when his Royal Highness was pleased personally to express great satisfaction.

**TEBAY'S PLANNING RULE.**—Mr. Tebay's scales, sold under this title, have the great advantage over those generally in use, that the number of scales required are all contained on one simple strip of wood, arranged so that each scale of divisions reads to the edge of the rule, so that the required distances may be "set off" with a pencil, and the use of the compasses dispensed with. All the scales are arranged according to equal subdivision, thus: 8 on the 8th scale is equal to 4 on the 4th, 2 on the 2nd, and 1 on the 1-in. scales. The 10ths and 12ths subdivisions, are at opposite ends of the rule, so that all the scales of each class may be read off the edge, from the smallest scale to the largest, by merely reversing the rule sideways, which is easily done in the left hand, being that in which the rule is held when used. They must be cheapened, and will then doubtless come into use.

**PEEL TESTIMONIAL.**—As no parties have applied to me for any information, perhaps you would afford me the opportunity through your columns to state, with reference to a recent paragraph in your journal, that all the sums forwarded here (50*l.* odd), and which were regularly acknowledged in the *Morning Advertiser*, are forthcoming at a moment's notice. I have stated this fact, in print, over and over again. Further, I have invited anonymous inquirers to favour me with a call any evening about nine o'clock; and when there were names and addresses, I wrote to the parties soliciting interviews. Not one person accepted the invitation. Having been connected with the *Morning Advertiser* some third of a century, and having now been its editor for several years, I apprehend that nobody has any very serious anxiety about the safety of the money. It is too late to regret that I consented to receive such sums as might be sent to this office; but, as I have also often intimated, I shall be most grateful to the subscribers, or any of them, if they can devise some plan to terminate the affair satisfactorily, and close the responsibility of yours, &c.—JOHN SCOTT.—*Morning Advertiser* Office, 14th March, 1850.

**SURVEY OF EDINBURGH ON THE ORDINANCE SCALE.**—Messrs. W. and A. K. Johnston, of Edinburgh, have been engaged for several years on a survey of that city, on the scale of 5 feet to 1 statute mile, and have just now completed it, and issued the first engraved sheet of the map. It will occupy in the whole 60 sheets of double elephant paper. The sheet completed relates to the centre of the city, and gives not merely every public building, but every house and outbuilding with the greatest clearness. It is surveyed and drawn by Mr. Andrew Lancefield; the outline by Mr. Alex. Adie, Mr. W. Jardine, and Mr. P. Johnston, under the direction of Mr. James Jardine. It is well engraved by Messrs. Johnston. Some arrangement should be made between the publishers and the Ordnance Board, who are about to commence the survey of Edinburgh, as otherwise time and money must be wasted.

**LIVERPOOL ARCHITECTURAL SOCIETY.**—At a meeting held on the 6th inst., Mr. E. H. Strype read a paper on "The Analogies and Sympathies of the Fine Arts." In the course of it he made some remarks on the word "suggestiveness" in art. A white post, he said, on a lonely road on a dark night would call up widely different associations to the different travellers. To the nervous and timid it was a footpad disguised to ride him; to the romantic, a houseless woman in distress; to the superstitious, with its vanishing and recurring, it was, peradventure, a spirit from another world; to the choleric and fearless it was something, he cared not what, and he forthwith ran his head against it; whilst to the peasant accustomed to the road it was simply what it was—a post. The suggestiveness was not in the post, but in the darkness, the time, the situation, the want of knowledge, and the mind of the observer. It was precisely so with many works of art. He contended, that to create, in the proper sense of the word, was not in the power of man; all that he could do was to discover, to unfold, and to combine.

**EXHIBITION OF ART AT BOLTON.**—By the exertions of Mr. Rothwell, the local secretary to the London Art-Union, an exhibition of the Art-Union prize pictures and bronzes, proposed by him to be made there for the benefit of the public baths and the dispensary, has been converted into a very successful general exhibition for these charitable purposes, by help of liberal picture-loans from gentlemen in the town and its vicinity. Nearly 600 valuable works of art have been exhibited, in the outset at 1*s.* a-head, afterwards at 6*d.*, and ultimately at 3*d.*, to enable the working classes of Bolton to enjoy a treat. The rooms are still nightly crowded, and yielding a clear profit of 30*l.* a-week, besides donations to the amount of several hundred pounds, so that both of the institutions aided will be greatly benefited, and the advancement of the arts much promoted.

**IMPROVEMENT IN STEEL MANUFACTURE.**—Mr. J. M. Heath, of Hanwell, has taken out a patent for subjecting iron, in a granular state, to a welding heat, when combined with manganese and carbon.



**PROJECTED WORKS.**—Advertisements have been issued for tenders, by 10th April, for the erection of a chapel and other works at the Licensed Victuallers' Asylum, Old Kent-road; by a date not specified, for the erection of six carcasses and the completion of four other houses near Holloway,—also for the erection of two houses and shops in Hackney-road; by 26th inst., for constructing 525 feet of brick sewer and other works in Piccadilly; by 23rd inst., for enlarging, reseating, and restoring Little Harrowden Church, Northamptonshire, and erecting new schools there; by 26th, for the erection of a goods warehouse at Bradford for the Midland Railway Company; by 26th, for a supply of blue whinstone for the Renfrewshire turnpike roads; by 10th April, for two cast-iron purifiers with valves, sieves, and connections complete, to be erected at the works of the Bristol and Clifton Gas-light Company; by 28th inst., for forming, making, culverting, &c., 1,500 yards of new streets at Wolverhampton; by 9th April, for a supply of turn-tables for the Great Northern Railway; by 28th inst., for the supply of 400 12-inch socket pipes, &c., for the Coventry Gas Company; and by 9th May, for the erection of works on portions of the Great Northern Railway, near Newark and Retford.

**RAILWAY JOTTINGS.**—The London and North-Western have subscribed 500*l.* to the International Exhibition. As with the Architects' Institute, a question has been raised as to the power of the Company legally to do so.—At the late half-yearly meeting of the Chester and Holyhead, the chairman, Captain Moorsom, said he hardly knew whether to congratulate or to condole with the shareholders on the occasion. The Menai Straits may have been passed, the Government and the public may have been saved some 60,000*l.* a-year in the packet service, and the passage to Dublin from London shortened by four hours; but the Company itself had gained nothing, and worse than nothing, for they had not even the credit of having performed a great public service. They had been put to an expense of 200,000*l.* towards the harbour of refuge at Holyhead, by the threat that, unless they did, it would be undertaken by Government. Certain negotiations, however, were pending, and he must be silent. After a somewhat noisy discussion, a resolution was passed agreeing to a Bill now before Parliament for powers to lease the line to the London and North-Western.—The Bill proposed by Mr. Ricardo to establish regulations for traffic provisions, that companies be required to stop passenger trains, and to provide them at junctions, under a penalty of 50*l.* Companies to be bound to attach at junctions carriages of other companies, containing a certain number of passengers; and trains arriving after time to be forwarded at the expense of the company causing such irregularity. Proper accommodation to be provided for goods and passengers at junctions. When two places are connected by two or more railways, passengers to be booked by the shortest route, under a penalty of 10*l.* Goods waggons to be forwarded, if required, and minerals also within twelve hours after notice.

**THE ARCHITECTURAL EXHIBITION** will be held during the months of August and September, as stated in our advertising columns.

**ELECTRO-TELEGRAPHIC PROGRESS.**—A new discovery has been made by Mr. W. S. Thomas, of Norwich, New York, called the electro-thermic telegraph. Letters patent were granted to Mr. Thomas on February 12, 1850. This instrument is said to possess all the advantages of Morse and Bain's, and to be in some respects far superior. Mr. Thomas, it is said, does not use the magnet, or decompose a salt, but works on an entirely new principle, never before applied to telegraphing, and placed beyond all litigation. The principle is caloric, generated and controlled by the galvanic battery, and the operator, it is asserted, is enabled to transact twice the amount of business in the same time as with any telegraph now in use.—The Austrian Government, it appears, has opened to public use the electric telegraph between Vienna and Oldersburg; the way is thus now open from Vienna to Berlin.—The French National Assembly Committee have approved the principle of the Bill for opening the French lines of electric telegraph.

**CURE OF SMOKY CHIMNEYS.**—I beg leave to say my experience is corroborative of the efficacy of the system of contraction at the bottom of the flue, and the reverse at the top: I have tried it in many cases for the last dozen years, and it has invariably succeeded. The last cure I effected on this principle was a drawing-room chimney of a detached cottage, where the draught down the chimney was so strong as to drive the flame as well as smoke into the room. The plan I adopted was to cut into the back of the chimney immediately above the fireplace, and insert two chimney-pots,—a small and a large one,—applying the small end of the least downwards nearest the fire, and the larger one the same manner on that, which carried it to where the flue was of its regular size. It may be asked why the small aperture in the register did not have the desired effect? I answer that the chamber formed by the gathering of the flue immediately above the register is a receptacle for the smoke, which is driven into the room by the least wind, or a partial vacuum may be created, into which the cold air rushes from the top to restore the natural equilibrium. And I would beg leave to suggest, with a due respect to our architects, to set out the wythes of the flues 9 inches instead of 4½ inches, so that when they start the shaft, the flue being 9 inches by 9 inches, might batten on the inside gradually to 12 inches by 12 inches when finished. A desire to abolish those architectural marplots, those vile zinc monstrosities which disfigure so many of our edifices, public and private, by leading others to test the system, will be my excuse for making this communication.—A WORKING BRICK-LAYER.

**OPENINGS IN THE CITY.**—It has often occurred to me that advantage should be taken of any casual openings to improve the public ways; and not to let slip one, which I perceive at present fitted to subserve the object in view, I beg to allude to the pulling down of a large pile of buildings in Bell-yard, Gracechurch-street, where the Cross Keys Inn used to be; and it is to be hoped, that now so much space is vacant, care may be taken not to crowd buildings on to the same spot. I suggest, that instead of a dingy dark court-yard, surrounded with blind alleys, there should be a break in the continuous line of brick and mortar facing Gracechurch-street, and that, in the space thus thrown open by the pulling down of houses, a nicely flagged square, or "place," as the French have it, should be allowed to grow up. The width to be sufficient to give light to rooms looking into the said square or "place," from houses on each side, and that there be no projections, in order that the windows from the first floor upwards should command the thoroughfare in Gracechurch-street. On the ground-story there might be a range of projecting shops, which would not interfere with the upper windows commanding the street (Gracechurch-street), nor prevent their being let, whilst these shops might be themselves well lighted from dome roofs, as well as from their front windows.—CIVIS.

**THE MASONS' STRIKE AT GRIMSBY** is still, we regret to say, unsettled. The cause appears to have been the refusal of the contractors to return to the 5*s.* a-day given before the short-day reduction to 4*s.* 6*d.*, their alleged intention being on the contrary to reduce the wages still further.

**DISTRICT SURVEYORS' CHARGES.**—Differing from my friend Mr. Baker, I think you have with great kindness and judgment (for which you deserve the thanks of the district surveyors) forbore to give the name of one who has been convicted by the official referees and the Board of Works of making exorbitant charges. But for this Mr. Baker finds fault with you, fearing lest the censure given anonymously might fall upon him. I have no such fear; nor do I wish to defend the system of charges in question; but still, as a district surveyor, I offer you my thanks for the delicacy you have shown in your report of the case, and I do think that Mr. Baker, who is so vehement in his condemnation, does not sufficiently bear in mind the difficulties attending the introduction of a professedly difficult Act into a new district. Charity becomes us all, but more especially when a brother's failings are made manifest.—EDW. C. HAKEWILL.  
Craig's-court, Charing-cross.

**DARTFORD.**—On the 17th instant the organ in Dartford Church was re-opened. During the past winter the instrument has been much enlarged; and to avoid obstruction to the fine Decorated west window, and to forward other improvements in the church, it has undergone an entire reconstruction. The restoration or reconstruction of the window in the vestry room progresses. Little doubt exists in the writer's mind that this window was altered during the reign of King Henry VII., from a triple Early English window to a Perpendicular, and hence the weakness which caused it to fall in last year. Care has been taken of the nearly perfect collection of Oxford albs hitherto kept in this room, and during the restoration they have been removed to the Armoury. In this Armoury the fittings put up during the Commonwealth still remain.

**ENCOURAGEMENT TO ARCHITECTS.**—The Town Council of East Retford have announced their determination to have a corn exchange, and to give, for "the best plan" (not forgetting "specifications and estimates"), the munificent sum of three guineas (note the gentility of the odd shillings); for the second best, only one guinea less; the remaining guinea to be thrown away upon the third! Architecture is looking up amongst the wise men of East Retford.—We almost forgot to warn all and sundry, by the way, that "the town council of East Retford" have also determined "not to give anything for plans not deserving of merit,"—such plans certainly not being deserving of payment at least, in the face of others whose own merit must constitute their best,—since it will be their only,—payment or solatium at East Retford.

**THE SOCIETY OF BRITISH ARTISTS** will open their exhibition to the public on Monday. The collection is thought to be above the average degree of merit. Mr. Hurlstone has two very good works; Mr. Herring some beautiful bits; Mr. Baxter, an excellent head of Mr. Clint. Mr. Allen, Mr. Pyne, Mr. Noble, Mr. Percy, Mr. Anthony, and others, exhibit some good specimens of their art.

**THE ROMAN REMAINS IN MOULSHAM**, recently excavated by Mr. French, consist of very perfect specimens of massive and apparently vitrified walling, and portions of two chambers, in one of which six pile, formed of fourteen tiles each, have been exposed to view.

#### TENDERS

For a Sugar-house for Messrs. Wainwright and Gadesden, Leman-street, Goodman's-fields; Mr. R. Suter, architect:—

Munday	£ 1,448
Kelk	4,499
Piggin	4,495
Hayward and Nixon	4,277
Lawrence and Son	4,172
Myers	4,105
Grindall	4,100
Little and Son	4,095
Wilson	4,089
Winsland and Holland	3,999
Lock and Nesham	3,999
P'anson	3,985
Ashey and Horner	3,945
Lee and Son	3,940

Quantities taken out by Marshall and Meakin.

For a Paragon-house at Wheatley, Oxfordshire; Mr. Lamb, architect:—

Mackrory	£ 1,475 0 0
Froud, Wheatley	1,473 15 0
Pleasant and Lusk, Oxford	1,177 0 0
Walker and Soper	1,075 0 0
Burton	981 0 0
Brecher	974 0 0
Sym, Oxford	953 0 0
Holland, Thame	950 0 0
Ludlow, Oxford (accepted)	949 0 0

#### BUILDINGS AND MONUMENTS,

MODERN AND MEDIEVAL:  
Being Illustrations of the Edifices of the Nineteenth Century, and of some of the Architectural Works of the Middle Ages.

Edited by GEO. GOWDIN, F.R.S.,

Fellow of the Institute of Architects. Corresponding Member of several Societies.

Part VI. of this work, price 2*s.* 6*d.*, is now ready, containing Views of the Great Hall at the Euston Station of the London and North-Western Railway; the General Meeting-room at the same; the Mansion of H. T. Hope, Esq., M.P., Piccadilly; St. Barnabas's College, Queen-street, Piccadilly; Romney Abbey Church; the London Coal Exchange, Lower Thames-street; the House of Francis I., Champs Elysées, Paris; the Hotel Lacarriere, Paris; Font in the Madeleine, Paris; with descriptive Letter-press, and Details.

Part VII. will be published May 1, and Part VIII. will complete the work. To prevent disappointment, the names of parties intending to take the work when completed should be sent forthwith.

Published at the Office of "The Builder," 2, York-street, Covent Garden, or by order of any Bookseller.



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# The Builder.

No. CCCLXXIII.

SATURDAY, MARCH 30, 1850.



GOING our round at the beginning of the week, we complained to the foreman at one building that there were no slaters at work, although it was most important that the structure should be covered in while fine weather lasted. "Why, Sir," said the foreman, a shrewd steady fellow (and there are many such), "this is *Monday*, and *they* have not spent all their money yet. They'll be here to-morrow. Monday is a bad day with many, though a good one for the publicans."

This set us thinking on the subject of Impudence as we followed our avocation, and we determined on asking some of those operatives who do not go to work till "their money is spent," and destroy their own health and character in bringing about this consumption as rapidly as possible, to consider whether they are acting judiciously, not to say wisely; and if they see, as they must see, that they are not doing so, to implore them to shake off the trammels of evil habits, which will inevitably not merely prevent them from rising, but press them down deeper and deeper still into the slough of poverty, degradation, and misery. To conquer a bad habit (not an easy matter) is a noble task to set one's self; the victory in such an endeavour, irrespective of good consequences, ever gives more real and enduring delight than is to be found temporarily in the indulgence of the vice so conquered. We are not about to preach a sermon, or to enter at any length into the matter; but earnestly desiring the well-being and elevation of the operative classes, and fully impressed with a conviction of their industry, skill, steadiness, and right feeling, as a body, we would urge upon the exceptions to whom we have referred, the paramount importance of regular and provident habits, the value of education, the deadly evils of the demoralizing gin-shop!

It is not merely the loss of the day's wages on the part of those who will not come till their money is gone, and that the means of subsistence and improvement are *spent* instead of *earned*, that are to be deplored, but the looseness of character which it induces,—the want of thoughtfulness and power of steady industry so necessary for self-improvement, and the certainty of a degraded and melancholy future.

In a financial point of view, remember, that when there is less work the irregular and the careless are the first discharged. Remember, too, that the man who puts by two shillings a week in a savings' bank, from the time he is twenty-one, instead of wasting it, will find himself at the age of thirty with a capital of more than 60*l.*, and, moreover, through this saving, will so improve his habits and ability, his power of intellectual exertion, as will enable him best to meet the contingencies of the moment and advance himself in society.

Do not let it be supposed we would condemn the operative classes to eternal toil,—would teach them

"To scorn delights, and live laborious days,"

nor that we see the chief good in the mere saving of money. Far from this; we would strive to shorten their hours of toil, to give

them time for the enjoyment of reading and further means of improvement, and the opportunity for healthful recreation.

We have claimed, and ever will claim for an honest, industrious, and skilful workman, more consideration than he usually enjoys, and would do all in our power to help him forward in his progress. Real improvement, however, must be each man's own work. There is no royal road to self-discipline and self-improvement; it must be achieved by your own individual efforts, and can be striven for whether at work for your daily bread or in leisure.

Cultivate a love of reading and habits of reflection. "Books," said Channing, in a lecture to working men, "books are the true levellers, giving to all who will faithfully use them the society and spiritual presence of the best and greatest of our race; so that an individual may be excluded from what is called good society, and yet not pine for want of intellectual companionship."

Once open the mind to receive suggestive impressions from without, and they are found in every quarter. "You have heard," remarks one who has worked his way from the bottom, "of blacksmiths who became mayors and magistrates of towns and cities, and men of great wealth and influence. What was the secret of their success? Why, they picked up nails and pins in the street, and carried them home in the pockets of their waistcoats. Now, you must pick up thoughts in the same way, and fill your mind with them; and they will grow into other thoughts almost while you are asleep." The world is full of thoughts, and you will find them strewn everywhere in your path.

It is not for enjoyments such as these that men stop away from work till "their money is all gone." It is that they may have such enjoyments that we would earnestly impress upon them the importance of provident habits and the necessity for steady industry.

We have been asked for information as to the projected Provident and Friendly Society for building and engineering Workmen, commenced under such promising auspices. Nothing very satisfactory has yet been done, but the respectable names which compose the committee are too deeply engaged to permit a suspicion of their failure; and it would be a great wrong to these gentlemen to doubt for a moment that we shall ultimately witness some reasonable result from their labours.

Messrs. Angell, Bunning, Cockerell, Hardwick, Roberts, Tite, architects; Messrs. Field, Rennie, and Walker, engineers; Messrs. Baker, Thos. Cubitt, W. Cubitt, Lee, Piper, and Sheriff Lawrence, builders, are the conspicuous names responsible for the success of this laudable undertaking.

We are quite aware of the difficulties they have had, and must have, to encounter in working out their great object. The meeting of the 25th of January, of builders, architects, engineers, and workmen, was followed by one of the latter only,—the result of which, great as the enthusiasm displayed at the meeting was, was untoward. The workmen declined the provident part of the scheme for their future security, but warmly urged the friendly, for their immediate security against sickness and accident, by proposing a sick-fund. This was absolutely declined by the committee, as an interpretation of their friendly proposition which they could not entertain. The establishment of a sick-fund, under the vigilance of a mutual benefit or friendly society, watched and administered by interested parties, under the

usual conditions of a zealous and constant superintendence, is subject to so much fraud of simulated illness that failure is of constant occurrence; but a society as proposed, so extensive as it would become, and conducted without these essential precautions, by a body of disinterested members, would be bankrupt in six months, and would, in effect, like a poor-rate, offer a temptation to fraud on an enormous scale, defeating the moral end of the proposed society.

The sub-committee of operatives have offered no alternative to this desired sick fund; they deny the capability of workmen in general to extend their means and views to future provision; and the society, faithful to their principle, "the encouragement of provident habits," and "the aid of those who aid themselves," are left to devise such means as will by degrees be entertained by the workmen, however gradual these degrees may be; for there can be no doubt that, however proverbially prodigal and improvident many of the English artificers may be, there are numbers who do honourably effect insurance and provision for their families and their old age; and certain it is, that they are often capable of doing so, as the savings banks and insurance societies abundantly prove.

We must have patience; habits of providence are the distinguishing characteristics of a high morality and improved civilization. The evidences of the effects of these and of the contrary are apparent in our commonest experience of the workmen under our daily notice: in the long run, sobriety, education, cleanliness, punctuality, soon make a foreman, then a small contractor, perhaps a large one, and at last a benefactor; while on the other hand, we too often see the gin palace, poverty, degradation, premature decay, the union workhouse, or the gaol.

## THE DOMESTIC ARCHITECTURE OF BARBAROUS RACES.

AFRICA AND AUSTRALIA.\*

FROM the Indian Islands, where the beneficent labours of Sir James Brooke may be expected to create a higher degree of civilization, we turn to Australia. Like them, this vast sea-surrounded region consists, in its remoter portions, of wild and little-known districts, peopled by strange and savage tribes of men; but, unlike them, its wildernesses appear likely long to remain in their original barbarity. And for this reason, that, while in our vast insular dependency beyond the waters of the further East, we devote ourselves almost wholly to the nurture and development, the enrichment and protection of our own colonies, and our own colonists,—in the Indian Archipelago we have commenced a system which, by encouraging native industry, protecting the defenceless from pirates, and stimulating the desire for improvement, allows the island races to run in a course of prosperity parallel with that of their friends from the distant west. Consequently, in the practices of life, and the arts of industry, we witness a rapid improvement among them; and if, in accordance with the maxim we have already laid down, that the social condition of a nation may, in a great degree, be judged by the style and quality of its domestic architecture, we view their progress from this point of view, the result of our inquiries among Sir James Brooke's subjects in Sarawak must be indeed gratifying. But turn to Australia, and explore its little trodden wilds, among its ignorant and barbarous tribes: there our standard may most justly be applied, for as the natives are among the lowest in the scale of human progress, so their domestic buildings are among the most primitive, frail, and rude constructions on the face of the earth.

Embracing, as the present sketch must do, the whole extent of two regions so immense, it is scarcely necessary to remark, that we must

\* See page 98, ante.



settled down at random on various spots of the surface of each, and illustrate our remarks by brief description. To attempt full details of the whole would swell this sketch to the dimensions of a volume. But our object will be gained by a rapid glance at some remarkable features of the subject.

On the less known coast near Cape Leveque, Captain Stokes observed dwellings as primitive as can be conceived, consisting of nothing more than a slight and rough roof of thatch, supported at the corners by four upright forked poles, between three and four feet high. Beneath this the native sat on the naked earth, with none of Nature's beauties shut out from his view; but sufficiently protected, according to his notions, from the rain, the sun, and the wind. Against this, indeed, little barrier was required. But even in Australia the habitations of man are seldom so rude as this. Further up towards Swan River, in the little outlying island of Bathurst, they are different from, and superior to, almost all other native dwellings in Australia. They resemble those singular erections which the mariner, as he navigates the stormy shores of the Terra del Fuego, may observe from the sea, appearing, in the distance, like the nests of huge birds built among precipitous places. Stout poles, from fourteen to sixteen feet in length, form the framework. These are planted in the ground, describing a circle, and brought together conically at the roof. A thick and close thatching of grass is woven between, and laid over the skeleton, and the whole, when completed, is substantial, warm, and wind and waterproof. In winter, fires are kindled in the interior; and at certain seasons the huts are deserted by their tenants, who prefer to ramble among the green solitudes of their shores, sleeping on soft couches of nature's own provision, and sheltered only by the leaves of some umbrageous tree. Indeed, many of the tribes of the naked savages make no attempt to erect for themselves habitations during any period of the year; but when the nights are cold, and the bitter winds compel them to seek warmth, they congregate in some spot where the sand is deep, and burying themselves in it, remain with their heads only aboveground. The traveller who should suddenly surprise their slumbers would imagine that he saw the trophies of some battle, until the native, rolling round in his sandy place of rest, gave token of life. Yet this neglect of the comforts which render life pleasant to the civilized man, does not proceed from incapability, as in the few places where the Australian and the white man have toiled in partnership, there exist, especially on the verdant banks of the Swan, neat, snug cottages, that would tempt any settler by their snug and picturesque appearance. These are the works of the aborigines.

On Dupuch Island, a vast pile of reddish-coloured rocks, some distance westward of the Swan river, are groups of huts, inhabited only at the turtle season, and composed merely of a frame of boughs and twigs, with a loose matting of twisted grass merely thrown over it. Yet the simple builders of these simple habitations, little progress as they had made in useful industry, had made an advance in art which is rare among utterly savage races, and had covered the hard surface of the rocks with graven representations of birds, hearts, fishes, and scenes in life and nature which are eminently curious. Along the whole of these coasts, at some distance from the sea, the habitations are constructed for the most part of the branches of trees, bent at the top, and joined by a lashing of grass, and thatched with the same materials, or twigs and leaves. If we leave the outer rim of land that circles the unknown interior, and enter those tracts which have only once or twice been exposed to the traveller's eye, we shall discover specimens of domestic architecture equally curious and primitive, and equally illustrating the debased condition of the native race.

Deep in the level wilderness of the northern interior may be seen villages of irregular construction,—very primitive, but evidencing considerable care for comfort, and knowledge of the means by which it may be obtained. They were made of strong boughs, fixed in the ground so as to form a circle, meeting above in a common centre, and covered with a dense thatch of grass and leaves, as usual. Plastered over this, however, is a compact and

thick coating of a peculiar clay, which hardens in the sun, and is equally impervious to heat and rain. The habitations are from eight to ten feet in diameter, and about four feet and a half high, with openings not larger than to allow a man to creep in, in the posture of an animal. The various circumstances deserve remark. All these huts face the north-west, and each dwelling has by its side another of similar construction, but smaller size,—whether used for children or for storing provisions is not known. Probably they were employed for the latter purpose; but as the villages are only occupied during the rainy season, and were deserted when the only traveller that has visited these regions saw them, the truth could not then be ascertained.

In some parts it would seem that the huts are built every year, and deserted after one season's occupation, as the old ones are seen scattered over the district near those which have been more recently erected. The sight of an abandoned dwelling, whether the palace of a king or the hut of a savage, is full of suggestions. Perhaps the one is no more a relic of barbarism than the other. With civilized nations all is progress; one generation is ashamed to inhabit the structures erected by the last, and casts aside as useless the monuments of folly and superstitious ignorance. With barbarians it is different, and age after age they build the same houses, as they worship at the same altars, and put faith in the same powers, earthly or supernatural. Altogether, the dwellings of the aboriginal tribes of Australia are, in most instances, somewhat solidly constructed, and well adapted to secure their inmates that animal comfort which is so much loved by the savage. Where there are villages the huts are built in regular order, the back of one being at the back of the other, with the little huts running through in parallel lines. The whole appearance is curious and somewhat picturesque, although the same is wanting in those features which lend a charm to every oriental village.

From this brief glance at the domestic architecture of Australia, it will be at once perceived that the social condition of these tribes is far below that of the Indian Islanders. They are far behind the Malays and the Dyaks; but every year will leave them further in the rear.

Transporting ourselves over to the banks of the Niger in Africa, whence we propose to extend our view over various parts of the continent, we find the dwelling-houses more various in their sizes, shape, and construction, while they are equally curious and primitive.

The first considerable village which meets the traveller's eye as he navigates the river towards its source, is Akassa, containing about 200 inhabitants. The huts are quadrangular, small and neat buildings, built of bamboo and roofed with palm leaves. They are usually divided into two compartments, with an entrance from one into the other. In one corner is placed a platform of flat boards, elevated on four large stones. During the rainy season fires are constantly kept burning on the floor in the centre. As we proceed further, the appearance of the hamlets varies much, now displaying one grade of civilization, now another, but differing among all the tribes. We see, next to Akasis, Nadi, which is supposed to be erected on an artificial bank of earth. The houses are shaped like English cottages, built of clay, and covered with a warm and heavy thatch,—the whole appearing in the distance like a number of haystacks on the shore of a river. Some of the houses enclose a small court, somewhat in the eastern fashion. Others are of a quadrangular form, and divided into two, placed at right angles, well built of mud, and roofed with a compact matting of dried palm-leaves, and a species of reed, that flourishes in the marshes on the river bank. The floor is raised 18 inches from the ground, and the solitary square aperture in the wall serves as door, window, and chimney. The roof descends in broad dipping eaves, which are supported by wooden pillars, curiously streaked with red and yellow colours, as the rest of the exterior is. Persons of consequence possess larger houses, with more numerous chambers.

These species of dwellings continue until the commencement of a certain district, when they change at once the flat, or sloping roof, for those of a pointed shape, while the huts are

circular, and arranged in picturesque rows, at some distance from the water. They have oval apertures, and are dark and close. The verandah formed by the eaves is the principal place of enjoyment for the natives, who sit on finely wrought mats, the produce of that industry which is remarkable among these African tribes. The city of Idhah contains 2,000 huts, with a population of 9,000.

A general view of the domestic architecture in this—one of the most curious districts of Africa, shows that little else is sought for by the savage save shelter from the sun and rain. In the lower region the houses are invariably oblong, with gable ends, built of stakes, filled in with mud and thatched, generally occupying two, and sometimes three sides of a court, the other being inclosed—as we are told in the narrative of the last expedition—by a palisade with a gate, overhung by the graceful banana or cocoa tree. "Some of these are neat," say Messrs. Allen and Thompson, "but they are generally small and huddled together, as if ground-rent were high." Above the Delta, and beginning at the boundary of a particular district, the huts are all circular and very small; but the owner is never stinted for room, as, instead of having one house with many chambers, he has many chambers, each forming a separate house. A circular wall is raised of clay, and the roof, constructed separately of the stout, light, and tapering ribs of the palm branch, with the thatch neatly woven, like a fringe, with grass wound about it from the bottom to the top, is then placed over the erection. Some have flat ceilings of the ribs of palm branches placed across, but most are open to the top of the high and conical roof. The floor is of mud, but sometimes hardened with broken pieces of earthenware. The clay for the walls is formed into roundish lumps, which are joined by being wetted and laid together. Sometimes they are coloured with indigo, and the part round the door is stamped in various patterns,—as circles, leaves, and crocodiles. The fastening is a bolt or rude padlock, but among these barbarians this is seldom required, partly because there is little to steal, but partly also because the people are honest, and respect the little property that belongs to their simple commonwealth.

In some districts the houses are formed of mere slopes of thatch, one laid against another, with the ends closed by planks, the whole supported by two or three forked poles in the centre. In Buddu, a town of the Mallam tribe, it is the custom to place an inverted pot, 2 feet deep, and made of black and polished ware, as the point of the circular conical roof, as a precaution, they say, against lightning. The Edeyah savage, like his contemporary of Australia, is content with a coarse covering of thatch, supported on four pillars, and open to all the winds of heaven. Sheltered by this roof, and with a pillow consisting of a block of wood resting on two crossed sticks, the man is happy. "The advantage of this singular pillow," say the authors already quoted "is that a loving couple can each put the arm round the other's neck by passing it under the sticks, as was shown us by two young girls." Even among this tribe, however, people of rank and title, as being more dainty and more valuable than common unepithetized humanity, have walls to their huts, and roofs of wattled palm leaves.

On Pirate Island, in the Bay of Amboises, the houses are similar to those along the lower course of the Niger, except that the clay side-walls are strengthened by wooden uprights planted in the ground and piercing the roof.

In the great Saharan desert, the house of the African is his tent. In Ethiopia, and beyond the countries watered by the Nile, with the regions fertilized by the White River, the African inhabits small round huts of clay, with conical thatched roofs, with various other forms, which, as we have already trenchanted largely on our space, it must be enough to mention in the barest detail.

Although, as we have said, in the waste solitudes of the Sahara we find the roving tribes bearing about with them their canvassed tents, that shelter them in their rest by night, and trouble them little in their marches by day, yet at intervals, in the desert region, are towns of considerable extent. Of these, Ghat and Ghadames are the principal. The style of architecture is neat, and, in the latter,



## MONUMENTAL SLABS AND CROSSES.



FIG. 1.

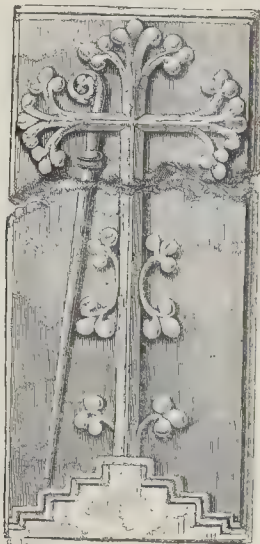


FIG. 2.



FIG. 3.



FIG. 4.

## MONUMENTAL SLABS AND CROSSES.

We have already given some illustrations of monumental slabs and crosses, and are now enabled to present a few more from Mr. Cutts's Manual, published under the sanction of the Archaeological Institute.\* An amazing variety of pleasing designs were made from the simple cross, or from the cross and circle in combination.

Fig. 1 is from Elford, Staffordshire. As remarked by Mr. Cutts, we frequently find the "St. Andrew's Cross" thus united with the "Christ's Cross," but it is difficult to assign the reason. Date, 13th century.

Fig. 2, from Sulby Abbey, is an interesting stone to an abbot or abbess. The triple trefoils probably symbolize the Holy Trinity: it is not unusual to find flowers springing from the Calvary. Date, 13th century.

Fig. 3 is from Bredon, Worcestershire.

Fig. 4 is also from Bredon, and is a fine example of a class. We have also here an example of an ornamented coffin. 14th century.

## A REPLY TO MR. PUGIN.

If I ask for a short space in your columns to-day, to make a few remarks in reply to Mr. Pugin's letter in your last number, it is not with the smallest idea that I can convince him that he is wrong and I right; for even supposing I had every conceivable advantage over him, agreement is impossible while we are talking of two totally different things. Still the architectural question appears to me so interesting, that I would like another opportunity of trying to put it in a clearer light.

Throughout his letter Mr. Pugin, as a Roman Catholic, is speaking of Roman Catholic places of worship; I, as a Protestant, was speaking of those suited to the services of the community to which I belong. There is a difference between the forms of the two churches, and therefore the edifices that suit the one cannot suit the other. I, of course, express no opinion as to whether the Roman Catholics are right or wrong as to the edifices they may choose to erect for their own purposes. As Protestants, we solemnly abjured some centuries ago certain forms and ceremonies, which had been added to the primitive religious forms during the Middle Ages, and adopted a form of worship in which we have persevered to the present day. According to it the prayers are read in the vernacular, the congregation are expected to follow, and frequently repeat after the clergyman what he reads, and the sermon is an important and essential part of our service.

With the Catholics nothing of this is essential. It is not necessary they should hear the words of the minister, but only should see what is passing, and hear the bell and the

fantastically elaborate. The walls are in general surmounted by a mud plaster-work, and the tops and terraces of the habitations are surmounted with the same style of material, minutely described by Richardson in the curious account of his travels. These decorations are various and very irregular.

The cupboards cut in the walls are triangular or square. All the doors and beams are manufactured from the wood of the date-palms, and are usually of the same shape as ours, but the entrances are sometimes so low that the inmate is compelled to stoop to enter. This is inconvenient to the dwellers, who carry spears of great length in their hands, not merely as weapons, but also as we use walking-sticks. Locks and keys of most ingenious construction are employed here, as also in the houses of the towns on the coast of Barbary. The key is of wood, 6 or 8 inches long, by 2 inches broad, and covered at one end with small pegs. The lock is fitted to these with holes, and on the arrangement and fitting of these contrivances the security and secrecy of the locks depend: it requires a practised hand to open the door thus secured.

Instead of carpets or mats, the floors are covered with sand, clean or dirty, as the owner may be so.

Indeed, among the African races, there is almost every variety of domestic architecture. Some of the tribes dwell in habitations equal to those of the Malays; some inhabit hovels inferior to the lowest class of Indian savages; some, indeed, fall beneath the scale of the Irish bog-trotters, which is saying a great deal. In our next sketch we shall touch, in conclusion, on the races of South America, California, the Pacific isles, and Siberia. Confined within limits so narrow, our details must be imperfect; but if the reader feel an interest in the subject, there are ample sources from which he may derive information.

**MAKING FREE WITH GAS PIPES WITHOUT LEAVE.**—At the Thames Police Court, the proprietor of the King's Arms Tavern, Mile-end-road, was charged last week with the serious offence of illegally connecting a pipe with the Commercial Gas Company's pipes, and using their gas without meter, on seventy-six occasions, thus subjecting himself to penalties amounting to nearly 160*l*. The charge of connecting the pipes was admitted, and the matter compromised by a check for 50*l*.

**PREMIUMS IN APPRENTICESHIP.**—The Lord Chancellor has just decided in a case where the master died and the offer of his executors to transfer an apprentice to a successor was refused, that as the premium was paid to the master for services to be rendered by him, when the anticipated condition failed by accident, or by the act of God, the party paying was entitled to have a fair proportion restored to him as an equitable debt.

\* J. H. Parker, Oxford and London. Reviewed some time since.



music; under these circumstances they can accommodate thousands with ease on the floor of a church of almost any form, while we are debarred from meeting together to a greater extent than 1,000 or 1,200, unless we adopt galleries or some other form of edifice.

These premises being granted, we come at once to the architectural question. Can an edifice be erected, adapted to the Protestant forms of worship, which shall accommodate a greater number, and be at the same time a dignified and solemn temple, worthy of the purpose to which it is dedicated?

Mr. Pugin of course will answer, There is but one form, that of the mediæval church; all the rest must be wrong. My belief is, that it is just as easy to erect a beautiful and solemn Protestant church, as it is to erect a Roman Catholic one. What men did once they may do again. The mediæval church was the invention of rude men, under very unfavourable circumstances. Their descendants may surely do as well under far more kindly influences; or, to take a wider view of the matter, there is no nation in the earth, from the earliest dawn of Egyptian civilization to the present time, or from the farthest east to the most distant west, who have not been able to devise and erect appropriate, beautiful, and solemn places of worship for themselves, and there can be no argument *à priori* why we should not do the same thing. It is true we have not hitherto done so, because in the last century we were careless of architectural ornament in churches; as we were in our houses and civic edifices; and now that we have turned our attention to the subject, instead of following the process which enabled our forefathers and all other nations of the world to erect such beautiful and appropriate temples for their worship, we have listened to the false teaching of those who have set up a servile doctrine of copying, in opposition to an honest and purposeful endeavour to do the best our intellects would admit of to express the religious feelings with which the nation is instinct and as much in earnest as any natives of the earth.

Except size, there is no one element of beauty at the command of the Roman Catholic artist which is not also available for the Protestant. He may build his church of precious marbles, enrich every detail, cover every part with sculpture and ornament, lavish every resource of art in every part, and as easily spend 100,000*l.* or a million upon it as a few thousands. In one point only is he hampered. The superficial measure of the part appropriated to the service must not exceed 7,000 or 8,000 feet. Size, however, is the vulgarst of all the elements of beauty; and this is amply sufficient, when well employed, for all the purposes of art.

One of Mr. Pugin's favourite sneers, which he has repeated ever since he wrote on this subject, is the easy convertibility of Protestant churches to coach-houses, &c. He knows, of course, that there is no edifice, however noble, that may not be converted to other uses, however base. But what are the facts of the case? There is scarcely a town in Catholic France where splendid Pointed edifices have not, within the limits of the present generation, been desecrated, and applied to the most ignoble purposes. In Protestant England I know of no single instance of such barbarity. On the contrary, we have been the most religious preservers of mediæval edifices, and were the first to appreciate and admire their beauties; unfortunately, also, the first to copy their forms. If I could condescend to it, does Mr. Pugin fancy I could not sneer as sarcastically at his productions as he does at ours?

In this letter, as elsewhere, Mr. Pugin strongly insists on the truthfulness of his architecture. That he is the most truthful of copyists I fully admit; but, according to my definition, truth in art consists in representing faithfully the wants and feelings of the people who use it, and of the age which gave truth to it.

No one sees more clearly, and has exposed more powerfully, the absurdity of Gothic castles and villas, and such like edifices, than Mr. Pugin; and it seems strange that he should not be able to perceive that in a religious, as well as in a social point of view, the priest or citizen of the nineteenth century differs from those of the thirteenth or fourteenth as essentially as the baron and serf of those days do from their descendants at pre-

sent. Neither the lord mayor's man in armour, nor the gentlemen who figured in the Eglington tournament were mediæval knights, though looking so like them. Nor are Mr. Pugin's churches mediæval, though so truthfully disguised. The spirit is entirely changed in both cases, and the bodily resemblance is a mere mockery and untruth which nothing can get over or conceal. It does not represent either the feelings of the age or of the people, and only amuses a few amateurs of mediæval antiquities, who in every other feeling or relation of life show how little sympathy they have with such masquerades.

With these opinions I cannot feel the bitterness of the reproach which was to annihilate by telling me I have no sympathy with the symbolism of modern mediæval churches. When I entered St. George's, Southwark, the other day, the roof, so far from representing heaven to my mind, was symbolical only of bad carpentry. A few gilt stars on a blue ground of painted deal, and two or three badly-carved wooden angels nailed to the end of the beams, representing heaven and its hosts, might be tolerated, though with pity, in the dark ages, and respected in New Zealand or the Sandwich Islands, but in the nineteenth century such carpentry sublimity appears to me but a sorry substitute for a purer and elevated conception of God and his works; and I am not ashamed to confess, that in this, Mr. Pugin's ideas and mine are wide apart as the poles, and I trust they may never approximate nearer to one another, from my side at least.

JAMES FERGUSON.

#### ARRANGEMENTS TO PREVENT EXPLOSIONS IN POWDER MILLS.

At the coroner's inquest upon the unfortunate victims of the recent explosion at Hounslow, one of the witnesses (a practical man engaged upon the works), in his evidence stated, that in the house where the first explosion occurred, it was necessary to roll the casks of powder over the floor, which was always unavoidably strewn with loose powder; and further, that this was a most dangerous operation, and the probable cause of the accident. Now, of the danger there can be no doubt, but I think by the adoption of either of the two following methods this danger may be (in a great measure) removed.

The first is to provide a portable tram-way, made of elm or other fitting wood, and the parts of which should be fastened together with copper screws, and well-covered with leather, particularly the rails, which should be of a sufficient height to keep the barrel quite independent of contact except where touching the rails; upon these rails the barrel would roll evenly, violent concussions would be avoided, all contact with loose powder upon the floor removed, and even should powder be strewn accidentally upon the rails, the surface of contact in the barrel being so materially reduced, the chances, or rather probabilities, of an accident must also be reduced in the same proportion. This tramway may be made in any convenient lengths, and laid down in a few minutes. When not in use it should be taken up, and kept in a place as free as possible from grit or dust of any description; thus it would be kept clean, and the leather preserved from the action of the saltpetre.

The other suggestion is,—could not a trap be left in the roof, and outside the house any simple machinery constructed, the running gear of which should be of leather or twisted gut, and the barrels be lowered thus through the roof; and, to avoid concussion when alighting inside the house, a leathern cushion (stuffed with leathern fibre, or any other unflammable material), should be provided. This latter suggestion is open to several objections, but the principal one I think is the breaking of the gear, and the consequent falling of the barrel.

BEOWULF.

PROPOSED NEW PARK FOR FINSBURY.—A committee has been formed to carry out this project. An area of 300 acres of vacant ground, costing about 150,000*l.*, has been pointed out by Mr. Lloyd, the projector, as an eligible site.

#### THE TONE OF ARCHITECTURAL WRITERS.

I AM a lover of architecture, and have been a diligent reader of works relating to art, and especially to architecture. My object in seeking instruction in books has been to endeavour to discover the principles upon which architecture is said to be based—I mean the scientific principles, such as those which in chemical and physical science serve to unite scientific men into a vast and harmonious community; presenting, as they do, a grand domain of neutral ground, upon which no quarrels are permitted, upon which all disputes are settled, and all points of disagreement adjusted. This neutral ground has been won for science by such men as Galileo, Newton, Davy, and a galaxy of similar splendid lights which have adorned our intellectual firmament, ancient and modern.

But in art, especially in architecture, there is no such neutral ground whereon artists may meet as brothers and friends, to test the merits of their respective works, and settle points of difference by reference to principles. And yet art has had its Galileos and its Newtons, whose works remain to instruct and benefit mankind; although the principles upon which they are constructed seem never to have been properly reduced to writing.

When a scientific man of ordinary ability sits down to write a treatise on chemical or physical science, he can scarcely fail to instruct his readers, and win the assent of scientific men themselves, provided he take only common industry and good sense as his guide; that is, if he carefully peruse the larger treatises and memoirs which have been written on the subject of his book, he is most likely to produce a true, if not a new work.

But in the fine arts, a man of extraordinary talent, attempting to write a treatise on any department, especially architecture, seems to be thrown almost entirely on his own resources; he has to navigate a ship without compass or rudder; he is at the mercy of the winds and waves of his own imagination, and hence can scarcely fail to be wrecked.

Surely this would not be so if writers entered upon their undertakings with the single purpose of discovering truth; if they were actuated by a real love of scientific principles, they would work harmoniously together, and endeavour to establish for art and its professors that neutral ground whereon all might meet in harmony.

Sad, indeed, is the task, to him who is impressed with a feeling of love and admiration for the pure, the beautiful, and the true in nature and in art, to wade through the treatises which from time to time appear on the different departments of art. Sadder still is it to hear the tone in which architects and artists speak of each other. In their books they write such words as "trash," "rubbish," "nonsense," and "folly," in their speech they apply such terms to each other as "dolt," "ass," "ignoramus," and "bungler."

Mr. Garbett, in his "Principles of Design in Architecture," has not avoided this error. The author is evidently in earnest, and some of his reasoning is both new and true. But I must strongly protest against the *tone* of the book; it is alike injurious to the author and to the art whose principles he seeks to expound. Men who would otherwise gladly listen to him will be offended by his tone; they cannot co-operate with such a teacher in raising the dignity of art, and working towards that desirable end—the harmony of brother-professors in one common pursuit. Sure I am that art contains within itself the broad truths of science, and equally sure I am that their broad truths will never be solved until artists become—like scientific men—anxious only for the discovery of truth.

In page 10, he speaks of a "great property benefiting none but its owner," just as if that were possible. Page 11, he speaks of "a people living surrounded and immersed in objects of bad taste, or in objects of good taste,—a people whose works are all utilitarian, and one whose works are all artistic." Of this it may be remarked that the one condition is about as impossible as the other; for in the palmiest days of Greece the people lived in rude huts, and the Grecian ladies had not the comforts and conveniences of one of our cottagers' wives. Page 28, Londoners are spoken of as being "utterly deadened to this



art (architecture), and rendered incapable of ever understanding it, by the atrocious misapprehensions of its forms perpetually before their eyes." And yet it is stated, page 32, that whoever wanders among the hundred columns of the great hall of the temple of Karnac, or rebuilds in his mind's-eye the temple of the Athenian goddess, or climbs to the edge of the Colosseum, or enters Amiens Cathedral, or walks round the exterior of Salisbury Cathedral, "whoever views any one of these works of architecture, and finds no poetry in it, must be incapable of discovering it in anything else in nature or in art." This is a specimen of the author's hasty and fallacious reasoning. What! are all Londoners, who are utterly deadened to this art, and "rendered incapable of ever understanding it," also to be incapable of discovering poetry "in anything else in nature or in art?" Monstrous conclusion. It is an insult to common sense to write such hollow fallacy.

Another fallacy, p. 29, is, that the uneducated mind, the rustic, or the child, "unused to cities, uncorrupted by the sight of abused architecture," will "immediately feel in true art all its intended effects;—shall be awed by the sublime majesty of the Doric, or raised by the heavenward aspiration of the Gothic temple; evoked by the mild repose of Palladio, and enlivened by the playful fancy of Scamozzi; sobered by the severe purity of the Greeks, and relaxed by the picturesque riot of Vanbrugh," and so on. All these effects, it is asserted, will be produced on the uneducated mind, on the mind of the rustic, or the child. Now, if art be anything, if genius be anything, we may be quite sure that they do not thus display themselves all at once. There never was a truer statement than that made by Sir Joshua Reynolds. His first visit to Rome produced a feeling of disappointment; Michaelangelo disappointed him; the grand and the beautiful works of genius did not at once appeal to his mind; weeks and weeks of study were necessary; admiration followed appreciation, and, by slow degrees, he became fully impressed with those feelings which, Mr. Garbett would say, ought to be roused at once in the mind of the child and the rustic. It is true Mr. Garbett is speaking of architecture, I am speaking of painting and sculpture. But this does not alter the case, for there is this property common to the works of genius, of whatever class, or of whatever clime, they require the study of an educated and thoughtful mind for their appreciation. The works of a great poet, of a great musician, of a great artist, do not appeal all at once to any mind. They must be studied, to be appreciated, and I would remind Mr. Garbett of his own golden rule, that *there is no substitute for thought.*

AN AMATEUR.

#### THE CINQUE CENTO STYLE OF ORNAMENTAL ART.

On Friday the 15th inst., Mr. Ralph Wornum continued his lectures at the Government School of Design, Somerset House, on "Ornamental Art."

The cinque-cento, or mille cinque-cento, said the lecturer, is the great sixteenth century development of the Renaissance in Italy, and this in contradistinction to the quattro-cento, or what had hitherto been done in the way of art generally, the cinque-cento being the finished result of the quattro-cento or Italian Renaissance in its general character. The term can be applied only to the ornament of the school of Raphael, which was a revival and apparently an improvement of the ancient Roman ornamental art. It is astonishing how close yet discriminative a copy the cinque-cento is of the Roman, as displayed by the great excavations of the sixteenth century in and about Rome. For this the Renaissance, in all its original features, and the Saracenic, were neglected, as not found in these ancient examples.

The cinque-cento is derived chiefly from ancient paintings, and especially from the decorations of the underground chambers of the baths of Titus, supposed to have formed a part of the celebrated golden house of Nero. There were many remains of ancient sculpture, however, quite familiar to the early decorators. In these, and on the triumphal arches and

monumental columns, there are abundant examples of the acanthus scroll, and the so-called arabesques, to impress themselves on the attention of the modern decorator.

The most magnificent monument of the cinque-cento is St. Peter's and the Vatican Palace at Rome, though the buildings themselves are comprised in the general term Renaissance; for, as regards architecture, cinque-cento and renaissance are very nearly identical terms, only the former is purer or more perfect in its classical imitations and ornaments. But of decorations, the sixteenth century was the great period, and the Papal Palace on the Vatican was embellished by Julius II. and Leo X. in a style of gorgeous splendour wholly unparalleled up to that time in Italy, and far surpassing, except in the outlay of precious metals, even anything that we know of Byzantine or Saracenic art. The architects contributed greatly to this splendour. The great masters were Bramante, Peruzzi, Sangallo, Raphael, Giulio Romano, and Michelangelo,—the three last also constituting the great triumvirate of pictorial and decorative art. But the last and greatest artists of the quattro-cento,—Pietro Perugino (the master of Raphael), Francia (the goldsmith of Bologna), Bernardino Luini, and Pinturicchio, were admirable decorators, and contributed doubtless little less than the other artists named to the great advancement of Italian art in the sixteenth century. Leonardo da Vinci, the all-accomplished, though an older man than most of these, must be accounted among the more modern in style; he decidedly belongs to the cinque-cento.

When Michelangelo was about to commence the "Last Judgment," on the altar wall of the Sistine Chapel, for Pope Clement VIII., a dispute arose as to the manner in which it was to be painted,—whether in oil or fresco,—for Titian and other Venetian and Lombard painters had caused the former to make vast strides in the opinions of men. The question, indeed, was started by a Venetian, Sebastiano del Piombo, that is, keeper of the leaden seal with which the Papal bulls were stamped. Michelangelo, however, like Alexander with the Gordian knot, cut the matter of dispute short by telling the Pope that the work must be executed in fresco, because oil painting was only fit for lazy persons, like Sebastiano del Piombo. The question, nevertheless, as you are aware, has been again raised recently in this country, and has been again decided in favour of fresco, but this time with a little more consideration than heretofore. The question is an interesting one in a historical point of view, and of practical importance also to the artist.

Raphael tried oil painting in the decoration of the Stanze of the Vatican, in the Sala di Constantino,—but seemingly gave it up after he had painted only two figures. Giulio Romano finished the apartment in fresco after Raphael's death, and probably by his desire. Michelangelo, I believe, continued the lecturer, never tried oil painting at all: the Holy Family, in the Florentine Gallery, some time supposed to be in oil, is in distemper. Leonardo da Vinci, Michelangelo, preferred decoration in oil to every other method, and from the gradual prevalence of oil painting subsequently for several ages, it would appear that this has been the general preference. The two figures by Raphael, alluded to, are still perfect, after 330 years, while the frescoes have much suffered. Dry walls, however, are necessary for both. The Vatican decorations are in tempera as well as fresco. Raphael, however, executed his easel pictures in oil. Oil pictures were commonly painted on wood.

After some more special and detailed allusion to the various celebrated works of the great masters, the lecturer proceeded to speak more particularly of the features of the cinque-cento style of ornament, illustrating his remarks by various examples.

The general balance, he observed, in the place of absolute symmetry, is a characteristic feature of the arabesque of the cinque-cento, and is one of the peculiarities which distinguish it from the ordinary quattro-cento, or Renaissance arabesques, though the symmetrical arabesques constantly occur in the cinque-cento also.

Another great feature of the cinque-cento is the admirable play of colour in its various

forms, the chief parts in all these decorations being played by the three secondary colours—orange, green, and purple. Its great leading form, the acanthus scroll, or the foliated spiral, is a perfect iris, sometimes, with its beautiful varieties of tints. The cinque-cento gives us an immense choice. It combines in its elements every feature of classical art in its complete form, with the unlimited choice of natural and conventional imitations from the entire animal and vegetable kingdoms. A striking and peculiar feature also of this style is its beautiful variations of standard ancient ornaments, as the anthemion particularly. Another is the guilloche or spira; likewise the fret; and the acanthus scroll is another great feature of elaboration. Curved lines especially seem to belong to the style, the spiral and the vertical being the favourites; the scroll is a spiral, and the guilloche is frequently an intersection or interlacing of two vertical curves; but a simple vertical, or screw, is a common moulding in cinque-cento decoration. And just as you clothe the scroll, or substitute a plant for a line in the spiral, so you may clothe or substitute a plant for the line in the vertical, and this will give you many beautiful arrangements, as there is great scope for the play of light and shade, and accordingly, also, for colour.

It is in sculpture that we must look for the purest examples of this culminating style in ornamental art, as regards the mere elaboration of form. Some fragments of a monument by Agostino Busti, a Milanese artist, were exhibited in illustration, as not only beautiful specimens of ornamental sculpture, but admirable examples of the purest cinque-cento: in the greaves and shield we have an exclusive treatment of the acanthus scroll; in the plaster and sword head we have the arabesque scrolls, with fanciful animal devices, but treated with the utmost propriety and taste. They are analogous to the Giulio Romano scrolls, and exemplify the essence of the cinque-cento—that is, in variety and play of lines and colours in the spirit of the antique.

#### THE BRICK DUTIES.

STOCK IN HAND.

On Monday last the Chancellor of the Exchequer said, that when he saw the deputation on the subject of the brick duties on Thursday last week, some of them said it would not be reasonable to expect any great amount of drawback; and it was suggested that he should give time to the first of June, in order to enable parties to dispose of their stocks, and then to give them a drawback on what remained. There was a probability, they contended, that by that time they would be able to dispose of half their stock, and it was only just, they said, that he (the Chancellor of the Exchequer) should pay them half a drawback. He, however, had come to the conclusion that an extension of time was most undesirable, because not only would the manufacturers of bricks be kept in suspense, but bricklayers, carpenters, joiners, glaziers, and a variety of other trades be thrown out of employment, probably, and a great injury, therefore, inflicted on them. He thought, therefore, that whatever he intended to do should be done at once, and so he proposed to allow a drawback of 50 per cent. on stock in hand; and he proposed that with respect to all bricks to be made henceforward the repeal of the duty should be immediate. With respect to parties who had entered into contracts for the supply of bricks at duty-paid price just before the announcement of the repeal of the duty, he would propose such a drawback as he thought would meet the justice of the case. Clauses to that effect have accordingly been introduced into the Bill.

ARTISTS' BENEVOLENT FUND.—The anniversary dinner of this excellent institution was held on 23rd inst., at the Freemasons' Tavern, Mr. B. Baring Wall, M.P., in the chair, when the meeting was addressed by the chairman, Sir W. C. Ross, R.A., Mr. R. H. Solly, F.R.S., Mr. B. B. Cabell, M.P., F.R.S., Mr. T. Uwins, R.A., Mr. Fahey, and other gentlemen. This fund has already done good, and deserves to be well supported. At the close of the evening subscriptions and donations were announced amounting nearly to 400l.



## NEW BANK, NORTHAMPTON.

MR. E. F. LAW, ARCHITECT.





## NEW BANK, NORTHAMPTON.

Our engraving represents the entrance-front of the new bank now erecting in Northampton, adjoining the New Corn Exchange, under the direction of Mr. E. F. Law, architect.

The entablature to Venetian window is supported by pillars and ante. The second story windows have columns of the Composite order, with pedestals resting partly on the front, which recedes 6 inches at the string course, and partly on trusses formed in the string course. The next windows have pilasters and architraves, with consoles and heads. The upper cornice has lions' heads on the corona, and modillions and dentils below, with an enriched frieze.

The plinth is of Derbyshire stone: all the other parts are of Bath stone. The building is fast progressing, and is to be completed by August. The amount of the contract is about 1,900*l*. The large Venetian window lights the bank.

## MODE OF DOING BRICKWORK IN THE METROPOLIS.

I BELIEVE one object of your journal is to examine and criticise the general practice of the building trade,—to point out the excellencies and advantages of harmonious design, permanent and sound mode of construction, skilful and sound workmanship, and the disadvantages of defective design, unsound mode of construction, and unskilful and unsound workmanship. Your judicious observations on these points are doing much good. By showing the defects in any branch of trade, there is necessarily induced a tendency to alter and amend, be it design, mode of construction, or workmanship. This may be said to be the great period of progress and improvement: in many branches of science and art, rapid and unprecedented progress has been made, and works and discoveries without parallel; hence we hear, in engineering, of subterranean highways and aerial bridges, to wit, a Thames tunnel, and a tubular bridge. Now, Sir, can nothing be done to improve my branch of trade—brick-laying? You have said something, but pray say more. It is in a deplorable condition: for one proof, take the following case, tried at the Southwark County Court last week.

A bricklayer claimed a sum of money from a builder, for doing the brickwork of St. Paul's Church, Rotherhithe. The principal evidence against the claim was, that the work had been done in so defective a manner, that it was valued (according to evidence) at the very novel sum of 16*s*. per rod. Now, how can there be expected any improvement in our branch of the trade, when work at the above value is *allowed to be done*, both by builder and architect: is it possible that work of such a quality could be done and neither builder nor architect see it; and if it were seen, why not stop such? Sir, if defects had been pointed out, an improvement might have taken place in this case; and if not, why did not those responsible for the proper execution of the work stop it? The monuments of Egypt and Greece would not have remained to us examples for study but for sound workmanship. But as to St. Paul's, Rotherhithe, and structures with such workmanship, they will have only this advantage, that they will not be long standing monuments of our carelessness and decline.

## A BRICKLAYER.

VALUE OF PROPERTY AT SHEFFIELD.—According to the local *Times* there is "an increased abundance of capital" at Sheffield, where, "not many months since, it was next to impossible to effect sales of property for investment at anything like reasonable prices." In illustration of this, it cites the particulars of some of twenty-two lots of Messrs. Parker and Shore's Sheffield estates, sold there by auction last week. The first of these, 10½ acres of land, "admirably circumstanced for buildings," sold for 2,750*l*. Three leasehold houses, with workshop,—in all, 617 square yards in area, in Spring-street, thirty-three years unexpired, yearly ground rent, 4*s*.—sold for 130*l*. One 100*l*. share in the Sheffield Water-works sold for 158*l*.

## CHEAPENING PATENTS.

It is no uncommon thing for a man in the conduct of his business to light upon some neat little modification of the usual way of working, which either takes a little off the prime cost of the article or adds some extra finish or appendage to it. The improvement is not of vast importance, nor perhaps of daily application, but he has spent some time and spoilt some material about it, and would like to make a little profit by it to put down on the other side of the account, by retaining its exclusive use and obtaining the aid of the law to secure him from depredation. On inquiry, however, he can learn of nothing in the shape of a patent under 120*l*. first cost; and being a prudent man, or perhaps not having the means of imprudence in his pocket, he gives that idea its dismissal. He recollects something about a registration office, obtains the printed copy of instructions, and cons them over. He is satisfied with the moderation of the fee, and would not quarrel with the duration of the right, but is also quite satisfied that his case is not within the Act, and is left to solace himself with the exercise of the Englishman's oldest privilege—the right of grumbling. Now, many such cases as these would be relieved by the system of semi-patents, viz., grants for half the standard duration, and at half the cost. Similar gradations exist in most continental states, and something closely analogous has been grafted on the patent law of the United States, which, in its general feature, is the same as our own.

We need not, however, look for arguments abroad. Our own patents have been made capable of extension, under additional expenses, to twice the usual period. This proposal is merely to allow a corresponding variation in the opposite direction to adjust the other end of the line. Admitting that a term of fourteen years was sometimes too short, excites intrinsically a suspicion of its being occasionally too long. At all events, let the inventor take a short term if he be willing. You throw obstacles in the way of extension, placing an *avvocato del diavolo* to oppose the grant at the Privy Council: there should be a premium on curtailment.

The plan, it must be confessed, is open to the objection made to *cheap* patents. Now, what do these amount to? Let us enumerate the leading ones:—

1. Patents would be taken for mere puffs?—Answer. A 50*l*. advertisement duty would be a good bargain for the public.

2. It would bring all sorts of difficulties among the aristocracy of inventors, the present patentees?—It would take a different and lower range of subjects; and, moreover, by multiplying the number of patentees, give them weight as a class.

3. Worthless trivial inventions, which prevent others from cultivating ground which they only encumber?—The immediate effect of all patents is to check competition and favour the inventor: in this point a monopoly of seven years costs the state less than one of fourteen.

4. Trouble of searching lists of numerous patents?—If a man buys land, he must pay for investigating title.

5. Increase of litigation?—An unfortunate accompaniment of property and civilization. Only two remedies are applicable: communism, which leaves no individual anything to go to law about; and Jack Cade's plan of hanging the lawyer.

6. A patent to a poor man is a curse (Mr. Carnmeal); not one in five pay (Mr. Webster)?

—There are always benevolent people to tell the poor man that money is the root of all evil, and that a little learning is a dangerous thing. The gravedigger was right in complaining that only rich people had leave to drown themselves.

8. Many experienced patent men are unfavourable to it?—In a recent debate the House of Commons was warned of the necessity of a little incredulity as to professional impossibility of reform.

9. "Every journeyman in every factory will have his patent?"—Did Sir R. Peel anticipate good or evil from that? If a considerable part of the community hold copyright, the moral standard will be raised, on the same

principle that a savings bank prevents robbery more efficiently than an army of policemen.

9. A manufacturer could not twist a bar of iron in peace?—Manufacturers must not trespass on their neighbours' ground. All the land in the kingdom is appropriated. You cannot pick a mop off a highland moor without the Duke's leave.

10. Patents do increase as it is?—The question is whether inventions increase faster.

11. No invention of real merit falls to the ground?—It is very odd that all really meritorious inventions should be worth *risking* 120*l*. upon.

12. It would give trouble to the office?—Patents are not established for the benefit of the Government, any more than letters are written for the good of the Post-office.

The main recommendation of the plan proposed is its simplicity; it does not involve the discussion of any new principle or any need of a cumbersome and verbose Act of Parliament. And as it would offer no impediment to the amelioration of the patent system in any other direction, it is thought that inventors might for such an object lay aside those conflicting theories and discrepancies which seem to have nullified all previous appeals to the Legislature.

Such a measure might advantageously be followed by the removal of the Utility Design Act, a sort of cross breed between patent amendment and ornamental copyright, which was not properly squared to either one or the other system, and which has been little trusted to, except for puffing and pretence.

## MALLEABLE AND CAST IRON BEAMS.

ON THE REMOVAL OF CASTINGS FROM THE SAND WHILE HOT.

It is common, particularly in small foundries where economy of space is necessary, to remove the castings of beams from the sand while hot. The inducement to this practice is the economy in sand it effects, for if the castings be allowed to cool before the removal, the sand near the casting becomes burnt and destroyed, and when it is remembered that this sand is of a peculiar kind, and is often brought from a considerable distance, the temptation to economize with it will be readily understood.

The sudden refrigeration from a premature exposure to the air causes a brittle texture; for cast iron, like steel or glass, has its hardness and brittleness increased by rapid cooling. In castings of variable thickness, it often happens, in spite of careful treatment, that from the unequal tension of the different parts arising from the unequal rate of contraction in cooling, flaws and rents are formed, and there can be little doubt, that in many cases in which this tension has not made itself thus apparent, it has had the effect of permanently weakening the casting. Thus, in the case of a beam removed red hot from the sand, and which presents the favourable condition of equal thickness in all parts, the exterior will cool more rapidly than the interior, and the consequence of this inequality must be a disturbance of that molecular arrangement, which is the normal state of the metal: the outer part being more rapidly cooled is also more brittle, and the consequence of this unstable equilibrium of the particles must be to diminish the strength of the casting; therefore to be prepared against all such contingencies of manufacture, it would be advisable the beam should be tested with a suitable weight, for even with the utmost care on the part of the founder, there is frequently an inequality in the iron though produced from the same furnace.

Much of the uncertainty attending the use of cast iron; might be obviated by the adoption of malleable iron beams, which could without difficulty be worked to any size that might be required by means of a Nasmyth's steam-hammer and powerful rolling mills. As has been several times urged in *THE BUILDER*, if an annual premium or honorary distinction were offered for the best specimen of rolled beams for building purposes, it would induce manufacturers of reputation to enter into the competition, and a very short time would suffice to effect such improvements in the details of the work as are only likely to be perfected in the prospect of a steady and increasing demand.

Iron as a material for ship-building has been



fully tested, and its advantages generally acknowledged, but it would appear that its applicability to house building has been greatly overlooked. If it were brought more into use with respect to our dwellings, the manufacture would receive a considerable impulse, which could not fail to operate beneficially on the national industry. G. J. RHODES.

#### THE INSTRUCTIONS AS TO THE BUILDING FOR THE '51 EXHIBITION.

WHERE honorary distinction is alone the reward of ingenious ability, it at least becomes desirable, if not essential, to render every reasonable facility to develop what is required. Upon taking up the plan issued by the Commission for the Exhibition of Industry of all Nations, the absence of sections of the surface line (both longitudinal and transverse) over the site destined for the proposed buildings, at once becomes apparent to the designer of a building so vast in relation to size and varied with regard to object.

Any edifice, however temporary in character, if covering a space of 700,000 square feet, must somewhere present sufficient horizontal line to demonstrate the varying features of the ground surface. No correct notion of the relative height of that surface can be gathered from the plan just issued. If sections were not given out on the score of expense, altitudinal figures might have been expressed, and these heights based on a common datum point near the locality. Such figures upon the plan would have afforded data as to the difference of level at certain points; and, although from a glance on the spot, the site may appear a tolerably level plane, yet the actual difference of height between the north-west point (by Kensington Gardens entrance) and the south-east point (near Knightsbridge Barracks) rather exceeds fourteen feet, and the difference of level between the north-east point of the site in question and the south-west point is above seven feet; whereas the centre again differs from either end.

Now, the plan thus ushered forth, with the prestige of authority, bearing the impress of all nations, and offering a scale of English feet, and another of French metres, is evidently intended and expected to have a wide range. With it, therefore, some reference to the levels of the spot in question was necessary, and could easily have been supplied.

Again, one of the "rules and conditions" is—"groups of trees shown on the plan must be preserved," but it no where states that the group of trees not shown on the plan may be destroyed. If so, a group of ten trees from 30 to 40 feet high, now existing near, and north of, the "Prince of Wales" gate, are liable to be removed, or to render inutile those designs which threaten their destruction.

WM. YATES FREEBODY.

#### COMPLETION OF PUBLIC BUILDINGS FOR 1851.

THE great Industrial Exhibition will probably gather together in this metropolis a greater number of foreigners, as well as of visitors of all grades from every part of this country, than have ever been assembled in London since the visit of the allied sovereigns at the peace of 1814. As invited guests, therefore, it becomes us to offer them a hearty and hospitable English welcome. But especially all public buildings, and monuments, and institutions,—all public walks, and gardens, and improvements,—and, in short, everything that serves to illustrate the national character in its corporate capacity, should be duly prepared for the auspicious occasion. This will be the best mode of showing our sympathy, and will be doing no more than what is fair towards the illustrious prince who has so nobly and unhesitatingly rendered himself responsible for the manner in which this great social festival is to be carried into effect: above all, it becomes the Government to set the example, by urging forward as much as possible all those public improvements and embellishments which are under their own immediate direction and control.

The three chief points of attraction to all strangers will, of course, be the Houses of Parliament, the British Museum, and the

Queen's Palace. These important buildings are, happily, in regard to their external works, in a state approaching completion, and but little effort will be necessary to finish them. As the people have generously undertaken to promote the primary objects of the exhibition at their own voluntary charge, the least that can be expected is that the funds for the above works should, if needful, be anticipated. The Nelson column and the works at the Tower, as well, also, as a place for the Vernon collection, ought in like manner to be suitably provided for. The credit of the whole country is at stake as to the manner in which this great industrial experiment is to be conducted.

If all classes and parties cordially unite to carry it to a successful issue, we may anticipate for the metropolis, in 1851, a season of prosperity, gaiety, and splendour, which it was not witnessed for some time past, and which may go far to obliterate the remembrance of the last few years of comparative depression and gloom. WATCHMAN.

#### A BRICK FOR PARTITIONS.

SEEING we shall have the brick duty speedily taken off, and that we shall have no hindrance to the form, size, or pattern of bricks or tiles for building purposes, I send a sketch of a tile I have used some time for partitions (and as a substitute for battenings walls) with great success. They are light, cheaper than lath and plaster, besides preventing sound, and when built with good sand mortar or cement are as solid as brick. I have used them 3 inches square and 12 inches long, but they might be made of any length or size: where used in place of brick nogging they can be made flat on the crown. I have had some partially cut before they were burnt, so as to make headers and closers, when they break without trouble. P.

#### "NOTES AND QUERIES"—BUT NOT FOR LONDON COMMON COUNCILMEN.

A PARAGRAPH in a recent leading article suggests the above title and the following remarks on the so-called city improvements. Your correspondent evidently imagines there is only one mode of doing a thing, viz., a straightforward one; but probably if he be a citizen he may in time arrive at the dignity of a committeeman, and then he will find that there are many things to be considered besides making the new street. First and foremost are the properties of the various wealthy city companies, most of whom have their friends either on the committee, or so directly connected with some of its members, as to have no cause for apprehension of their interests being damaged.

Next come private interests cloaked as public good—a disguise which allows them to be urged with greater pertinacity, and generally so well answers its purpose that none but an observing few suspect the apparent actors to be mere puppets in the hands of the high priest of the oracle. Your correspondent styles the "improvements" a picture of idleness: allow me to suggest the conversion of the place into a skittle-ground, in order to make the picture perfect. During the three years which have elapsed since the "improvements" commenced, the progress made has been confined to some 150 yards of frontage, leaving as much more to be done in the next two years, to say nothing of the Leadenhall-market improvement, which is embodied in the same Act. Claims which ought to have been settled before the end of six months have been barely settled at the end of twelve months, the committee having in the mean time been occupied in litigating about the amount of compensation to be given for the lease of a lodging-house and some half-dozen square yards of parish burial-ground, in both which cases, and indeed, I believe, in every other with which they have gone into court, they have been handsomely beaten.

So far the notes,—now for the queries. I have for some time been wishing for an oppor-

tunity of finding some one who could solve a doubt or two connected with these same "improvements" for me. These be they: Did the committee commence "their work at the middle" to suit the convenience of one of their own body? Has any one made a tender for a single foot of this ground "without a proper approach," except Deputy —, who is reported to have taken on lease the site of his old house? And, lastly, can a party after obtaining compensation for moving from A to B claim a second compensation for removing from B to A—both A and B being on the line of the proposed improvements?—I am your obedient servant,

BUT NOT A COMMON COUNCILMAN.

#### EXHIBITION: SOCIETY OF BRITISH ARTISTS.

WE mentioned briefly last week some of the principal exhibitors. Mr. Hurlstone has several excellent works; we would particularly point out,—38, "Portrait of the Son of Mr. Hopwood" (in which the hound is painted by Mr. Ansdell); 161, "Putting on the Head-dress,"—a rich piece of colour; and 265, "Lady Macbeth."—Mr. Baxter's "Portrait of Mr. Clint," 12, is admirable.—Mr. Allen's principal work, "Cooper's Hill, with Windsor Castle in the distance," is a fine landscape, in the painter's best manner.—Mr. Herring has several pictures in his particular walk, superior to anything he has yet done; we would particularly mention No. 75, "A Poulterer and Dealer in Game" (placed too low), and 19, "Interior of Stable."—Mr. Montague has greatly improved.—Mr. Woolmer has not done so to the extent his early pictures promised.—Mr. Gill's "Doctor—Advice Gratis," 32, would sell for a large sum if it had been painted by an old Dutchman.—Mr. A. Clint has, as usual, some excellent landscapes, especially 55, "At Uppang, near Whitby."

Mr. Anthony's large picture, "Windings of the Wye," is, in our opinion, a mistake,—the more to be regretted because of the genius of the artist. His "Study in a Country Churchyard," 331, is an extraordinary work, of wonderful power.—Mr. Prentiss has a clever Hogarthian picture, which he calls "The Folly of Extravagance;" Mr. Pyne a number of elegant transcripts of pure, bright atmosphere; Mr. Salter "A Bacchanalian Dance," 87, which found some admirers; and Mr. Noble a picture of the E. M. Ward school, from the diary of wanton Pepps.

Amongst other pictures which we had marked for notice are 22, "Vale of Llanrwst," by H. J. Boddington; 74, "Thames Craft, Moonlight," by E. Hassell; 80, "A Young Student," by C. Compton; 100, "Waterfall near Haeg, Norway," by W. West; 124, "The Village Pastor," from Goldsmith, by James Godwin; 164, "Tea-table Chat," by Clayter; 307, "Evening on the Thames," by J. D. Wingfield; 366, "Too Late," by J. W. Glass; and, "A Quiet Vale," by S. R. Percy.

With much that is pretty and pleasing, there is, we regret to say, very little that is great.

#### THE LONDON DRAINAGE PLANS AND THINGS TO DO.

PERMIT me to suggest that those gentlemen who have forwarded plans to the Metropolitan Commissioners of Sewers, should establish such an union between themselves, as might guarantee both their own plans and the subject at large fair and full consideration.

Some rather curious remarks were made by a worthy member of this commission, who is made to say that "persons thought they would live longer under an altered system of sewerage." Why the commission itself is a living evidence of the extent to which this superbly fallacious idea is entertained. Yes; from those who enjoy the seven stinks opposite Buckingham Palace to the undrained Poplarities, there is great unanimity—an idea absolutely "fixed." I would advise the commissioners to take some account of it. Some people, too, are absurd enough to think they would thrive better on other air than the gases of inhumed humanity, and are thought to have gone far towards getting rid of the latter.

True, there are a thousand evils that beset



## Miscellanea.

the health of the Londoner:—severest toil, miserable infrequency of social intercourse and human sympathy; dirt and disorder and crime; above his head ever hang damp vapours, surcharged with soot; around him lie scarce buried corpses and countless superfuities of filth, and at his feet rolls a stream whose pollutions he carries day by day to his lips, and whose retiring tide lays bare acres of superficial sludge. With one of these evils the Commissioners of Sewers are bound to deal, and no mere question of cost will avail them in their hour of failure. There are some who hope to rid their lives of the rest. All will come to pass; King Dilly-Dally will not always reign, nor this somewhat extensive city be set down a paradise of fools. When we have purified the earth beneath, and the waters under the earth, we shall look above; we shall see too if it be not possible to ventilate this huge amorphous structure; to diminish the evaporating surface of the Thames, and away with its mud banks; to diminish the evaporating surface of the land, and have done with its mudways; to induce or compel a more judicious consumption of fuel, and lift the pall that benumbs us. Were each one of us to burn two bushels of coke to each one hundred of coals, the latter evil would be lightened one-half, and our fires burn better. There is much to do yet for every one of us.

V. D. S. T.

## THE VERNON GALLERY OF BRITISH ART.\*

THE first volume of this fine work, dedicated by request of Mr. Vernon, to the British people, is now completed. It contains twenty-five subjects, including Mr. Pickersgill's truthful portrait of the munificent donor, engraved by Mote. E. Landseer, Callcott, E. M. Ward, Stanfield, Leslie, Gainsborough, Uwins, Constable, Collins, T. S. Cooper, Roberts, Turner, E. W. Cooke, Etty, Maclise, Creswick, Wilkie, and Webster, are ably rendered in the line manner, by Beckwith, Bentley, Bacon, Cousen, Staines, Stocks, Wallis, Willmore, Challis, Jeavons, Portbury, Kerrot, Greatbach, and Phillimore. Turner's "Venice" (admirably engraved by Willmore) comes out beautifully; Creswick's "Way to Church" (by Bentley) makes a glittering and beautiful print; and Landseer's "High Life" and "Low life" are exceedingly well engraved by Beckwith. Uwins' "*Chapeau de Brigand*," David Roberts' staircase in "Burgos Cathedral," E. W. Cooke's "Dutch Boats in a Calm," and Callcott's "Dutch Ferry," are our other favourites.

There is a want of subjects of high purpose and earnest thought in the collection; but that is not the fault of the work before us, nor will we now enter into the question which it involves. If "The Vernon Gallery" have the sale it deserves, it must be very large.

## GREENWICH BATHS AND LAUNDRIES COMPETITION.

THIRTEEN competitors sent in designs in reply to the advertisement of the Greenwich commissioners for building baths and wash-houses. From these, three were selected, and ultimately the choice fell on a set marked *Junius*, found to be the work of Mr. Robert Ritchie, of Greenwich. We ran down on Wednesday to see the plans, and had written a few notes upon the matter, but in consequence of strong representations from two of the competitors at the moment of going to press, we postpone the expression of any opinion.

## PRIZE MEDALS FOR THE INTERNATIONAL EXHIBITION.

Her Majesty's Commissioners for Promoting the Exhibition of 1851, have given notice that three prizes of 100*l.* each will be given to artists for the three most approved designs for reverses of the bronze medals to be awarded at the exhibition, and that three prizes of 50*l.* each will be given for the three best of those not chosen for that purpose.

\* Engravings from the works of British artists in the National Gallery, presented to the nation by the late Robert Vernon, Esq., 22nd December, 1847. Published for the proprietors, Marlborough Chambers, 49, Pall Mall.

INSTITUTION OF CIVIL ENGINEERS.—On Tuesday, March 26, Mr. W. Cubitt, President, in the chair, the first paper read was a "Description of the Chapple Viaduct, upon the Colchester and Stour Valley Extension of the Eastern Counties Railway," by Mr. P. Bruiff. This viaduct was thrown across the valley of the Colne, at Chapple; it consisted of thirty-two semi-circular arches, each of the span of 30 feet, the total length being 1,136 feet, and the extreme height from the foundations to the rail level being 80 feet. The average height of the piers from the foundation to the springing was 45 feet; they were 27 feet 3 inches wide by 4 feet 10½ inches thick, at the under side of the impost, and tapered downwards to the plinth, with a batter of 1 in 36; twenty-three of the piers only had plinths, which consisted of a set-off of 2½ inches, making the dimensions of the base of these piers 29 feet 6 inches wide, by 7 feet 1 inch thick. The piers were solid below the plinth, but above that level there was a centre opening 6 feet in width, arched at the top and the bottom. The whole of this viaduct was constructed of bricks made in the district, being chiefly set in mortar; but the arches for a distance of 4 feet 6 inches above the springing were set in cement. The viaduct occupied about twenty months in construction, and cost about 55*l.* per lineal yard. The next paper read was "On the Manufacture of Malleable Iron, with the results of Experiments on the Strength of Railway Axles," by Mr. G. B. Thorneycroft.

PROVINCIAL.—It is proposed to erect a new market for corn and cattle on the now almost cleared site of the old gaol at Chelmsford.

—The Wisbech Council have had a proposal from Mr. F. Utting, surveyor, to supply them with an accurate map of every block of building in the town, on a scale of one chain to the inch, for a contribution of 30*l.* towards the expense. The council could not see the utility of such a map.—The Bill for the new Victoria Docks, in the Essex marshes, opposite Woolwich, has not been opposed. The cost is estimated at 400,000*l.*, and with warehouses, 1,500,000*l.* Mr. Elmes, architect, and others gave evidence as to the requirement of such docks, and Mr. Rendel, on behalf of the Admiralty, is shortly to report.—A window, as a memorial to Lieut. Waghorn, is to be erected in Snodland Church, Kent.

—The little town of Llanelly (Carmarthen) has at once subscribed 120*l.* 6*s.* towards the international exhibition, and hopes to add a hundred or two more.—The south side of Aston Church, says the *Birmingham Journal*, is about being restored, under Mr. C. W. Orford's superintendence.—A new Roman Catholic Church, in the Decorated style, is to be erected on Snow-hill, Wolverhampton, at a cost of about 8,000*l.*—The Duke of Grafton is said to have found a Roman villa, near Paulerspury, on the Watling-street-road: his grace's labourers watch the treasure night and day.—Above 2,000*l.* have been subscribed for rebuilding All Saints', Manchester.—A tomb and headstone to the memory of two Edinburgh medical students, cut off by cholera, at Hull, while battling with it there in the exercise of their professional duties, has been designed by Messrs. Lockwood and Mawson, and executed by Mr. Wilson, at the expense of fellow-students.—A subscription has been opened for the restoration of a stained-glass window in the old church of Morpeth. The Earl of Carlisle, the rector, and others have already contributed.

WORTLEY UNION WORKHOUSE COMPETITION.—For Wortley Union Workhouse twenty-two designs were sent to the guardians; and from these they have selected, as being best adapted for their requirements, the drawings bearing the motto "*Si fortuna juvet*," which are the work of Messrs. Aickin and Capes.

CLEAR SPACE FOR ST. PAUL'S.—At a recent meeting of the City Sewers Commission, Mr. Haywood, the surveyor, presented a report entirely favourable to the projected improvements, and Mr. Barber mentioned that some of the canons and minor canons of the cathedral had expressed a desire to see it carried out.

MARLBOROUGH HOUSE AND THE NATIONAL GALLERY.—Our suggested appropriation of Marlborough House is to be, at all events temporarily, realized. In reply to a question put by Mr. Ewart in the House of Commons on Monday evening, Lord John Russell said it was the wish of the Government that the National Gallery should be devoted to the collection of national works of art, including those left by the late Mr. Vernon, as well as those left by the bequests of other persons; at the same time it was impossible not to see that, having given the Royal Academy privileges with the view of founding a national school of art, it was not only due to the Royal Academy, but also to the country, that they should have the means of maintaining that school. The Government, therefore, thought it right before they asked the Royal Academy to give up their part of the building, to propose a grant for the purpose of enabling them to find some other erection; and the Government intended to bring in a Bill in the course of the present session for that purpose. The House was aware that Marlborough House had, since the death of the Queen Dowager, reverted to the crown, and her Majesty had been graciously pleased to declare that for the present, and for a few years to come, that mansion might be used for the exhibition of the Vernon collection, together with any other pictures that might be presented to the nation.

## ROUTE OF THE OVERLAND MAIL TO INDIA.

—On the eve of publication, an opportunity was afforded us to see a moving diorama illustrative of the route of the overland mail to India, which will be opened on Monday, in Regent-street. It is the joint work of Messrs. Absolon, Grieve, and Telbin, assisted by Mr. Herring, who painted the animals, and we must content ourselves at present with saying that it is one of the most beautiful exhibitions of the kind ever opened, and is most honourable to the artists named. It is exhibited in what was formerly Nash's Gallery, which has been fitted up for the purpose, under the direction of Mr. Moreing.

DIORAMIC VIEWS OF AUSTRALIA.—"Dioramas is in," to a certainty. Mr. Skinner Prout adds his contribution in the shape of a series of dissolving views, illustrative of Australia, and convict and emigrant life. The artist accompanies them with some discourse, instructive as well as pleasant. It forms a very agreeable exhibition.

## BUILDING FUND FOR INSTITUTE OF ARCHITECTS.

—The very inadequate accommodation afforded to the whole body of "British Architects," by the occupancy of the one-pair floor in 16, Lower Grosvenor-street, must, together with the fact of their increasing numbers, suggest the necessity of their arranging to obtain a suitable edifice; and in this respect they may with advantage contemplate what has been effected by the Institute of Civil Engineers, by subscriptions among themselves. I would therefore recommend the formation of a "*Building Fund*" for the purchase of a suitable site and building: there is now a vacant site in Leicester-square, well adapted for such a purpose. The disposition evinced by Government with reference to the arts affords, I think, a hope that they might be led to grant a site to further so desirable an object. The services of a gentleman as paid secretary, with a salary of 250*l.* per annum, whose time and services should be entirely and unreservedly at the disposal of the Institute, with proper offices and apartments in the building, are, I consider, essential to the best interests of the Institute.—R. L. S.

## DONATION OF INSTITUTE OF ARCHITECTS TO '51 EXHIBITION.

—In our report of the proceedings of the Royal Institute of British Architects last week, we committed a mistake in stating that the Earl De Grey had taken upon himself the contribution of the 50 guineas of that body to the Exhibition of 1851. His lordship had, at the request of the council, transmitted their cheque to the treasurers of the fund, and our informant (we arrived late on the evening in question) misunderstood the terms of the acknowledgment sent by Mr. Cattley on the part of the commissioners.

## WORKHOUSE COMPETITION, BRADFORD.

—The premium of 30*l.* offered for the best design for a union workhouse at Bradford, has been awarded to Messrs. Atkinson, of York.



**PROJECTED WORKS.**—Advertisements have been issued for tenders, by 10th April, for a parsonage-house at Abbots' Bromley, Staffordshire; by 3rd, for the painting, repairs, and other works to four houses at Upper Clapton; by a date not specified, for altering three houses and putting in plate-glass fronts, in Holloway-road; by 10th April, for two cast-iron purifiers, with valves, sieves, &c., for the Bristol and Clifton Gas Company; by 4th, for the masons', carpenters', and iron work required in erecting gas works at Heckmond-wike; by 8th, for the removal of timber work at Deptford dockyard basin; by a date not specified, for the erection of St. John's Schools, Great Crosshall-street, Liverpool; by 15th April, for the erection of a new church at Edgehill, Liverpool; by 16th, for providing and laying about 3,000 lined yards of stone kerbing at Birmingham; by same date, for making, forming, and culverting new streets at Birmingham; by 3rd, for 500 tons of Guernsey granite for Mile-end Old-town; and by 9th May, for works on the Great Northern Railway, from Helstone to Corby, Hougham to Newark, and river Trent, near Newark, to Retford.

**LIVERPOOL ARCHITECTURAL SOCIETY.**—At the last fortnightly meeting of this society, Mr. Pictou advocated the establishment of a public library for Liverpool, and was supported by various members, who afterwards spoke to the suggestion. Mr. R. Turner, of Dublin, was to have exhibited a model of his iron roof over the railway station, but failed to do so, as he had done once before, and the meeting naturally regarded such treatment as an insult to a respectable society. Mr. Frank Howard then offered some remarks on "The Seven Lamps of Architecture," by Mr. Ruskin, from whom he dissented, and the subject was adjourned for discussion.

**SCULPTURE IN THE PEDIMENT OF ST. GEORGE'S HALL, LIVERPOOL.**—Mr. Cockrell's design for the sculpture in the pediment of St. George's Hall has been carried out by Mr. G. Nicholl, under the superintendence of Mr. C. L. Eastlake, R.A., and is about to be opened to public view. The following is the official description of the design:—"Britannia, her spear in her right hand, offering the olive branch with her left, is seated on her island rock, the lion at her side, and the Mersey or the ocean at her feet. By her side is Mercury, bringing to her the four quarters of the globe; Asia first, with the cornucopia at her feet; America, behind Europe, with her sword of power in her right hand, raising Africa with her left; and, lastly, Africa, in posture of gratitude and humility, with her sons in her arms; the breaking of whose chains is the work of Britannia. Beyond is Bacchus, the panther, and the wine vase. The other foreign products are represented by two figures drawing to land their several cargoes. On the right of Britannia are the English arts and products advancing to meet the foreign Apollo. Science holds the torch and guides the car, and Agriculture is at his side. Behind are the plough, the spindle, and the beehive, the peasant and his child forming a group to represent the domesticity of England. Beyond is the metallurgy, the fabric of arms and machinery, which she knows so well how to use."

**THE ELECTRIC LIGHT.**—Messrs. Stait and Petrie's specification of patent for improvements in electric light, contains fifteen claims of novelty of invention, among which are improved hydro-barometers, with flexible enclosed capillary syphon, of wick, &c., and caoutchouc, for drawing fluids from cells at any required depth or level alone; protection of galvanic apparatus by a process of sulphur-coating; improvements in cells and fluids; a mode of fusing iridium for electrodes, and an apparatus for shifting these as they waste away.

**PROVIDENT INSTITUTION OF BUILDERS' FOREMEN.**—We desire to recall attention to the fact that the anniversary dinner of this commendable institution is to be held on Wednesday next (3rd April), when we hope to see a full attendance of all interested in its useful objects.

**THE LIFE OF A LOCOMOTIVE** is estimated at one hundred and fifty thousand miles; the value of a first-rate engine, 2,500l. It follows that every mile it runs costs just fourpence.

**RAILWAY JOTTINGS.**—The Britannia-bridge, so far as completed, has been inspected by Captain Simmons, who instituted some important experiments which tested its structural strength, and the law of its deflection. The result is said to have been highly satisfactory. On Monday in last week the up mail express passed through for the first time, saving henceforth an hour's time. Other trains with traffic and passengers now regularly run through the tube. The cost of the whole structure it appears will be 674,000l., thrice the original estimate. The Company are said to look to Parliament to bear a share of the burden, on the plea of public benefit. —The railway works between Claydon and Islip are in active progress. Nearly 100 men are engaged near Biceston.

**ELECTRO-TELEGRAPHIC PROGRESS.**—The *Franklin Journal* announces a patent in America by Mr. S. Morse, for marking and printing, by means of the "decomposing, colouring, and bleaching effects of electricity acting upon any known salts that leave a mark as the result of the said decomposition upon paper, cloth, metals, or other convenient and known marketable material." —It is said that some costly scientific experiments have of late been made by the Electric Telegraph Company here, which have induced the directors to institute an entirely new system of insulation, both for suspended wires and in tunnels.

**THE NEW CHURCH AT ATHERSTONE,** in the county of Warwick, was consecrated on Thursday, the 14th inst., by the Lord Bishop of Worcester. The church which formerly occupied a portion of the site was capable of containing about 800 persons, who were accommodated in square pews of the worst description, and in galleries, of which there were three—one at the east, one at the west end, and one on the south side of the church. In the new building, sittings are provided for 1,250 persons, and the expense has been defrayed by public subscriptions, aided by grants of 500l. from the Lichfield Diocesan Society, and 300l. from the Incorporated Society for Promoting the Enlargement, Building, and Repairing of Churches and Chapels. The tower of the old building and a fine chancel to the east of it have not been removed; it is proposed to restore them, and to increase the height of the tower, as soon as sufficient funds can be raised for the purpose. Messrs. Wyatt and Brandon were the architects; Mr. R. Jennings, of Atherton, assisted in superintending the work; and Messrs. Broadbent and Hawley, of Leicester, were the contractors employed.

**ST. PAUL'S CATHEDRAL.**—In a recent number of your Journal in reference to the admission tax at St. Paul's Cathedral, you ask "what the Society for obtaining free admission to public edifices is about?" The great interest that you have long and zealously shown, and the constant and efficient efforts of *THE BUILDER* in this important subject, give your opinion great weight, and may induce the committee to recommence its exertions, and again batter the doors of the only edifices that utterly resisted the society's remonstrance, supported by the countenance of Royalty, and the recommendations of Government. The society advisedly ceased to agitate for a time, in the hope that the example of others, and the good conduct of the public, would shame the obstinate and contumacious into the improved general course, and to afford them the opportunity of meriting the thanks of mankind; but I agree with you that it is time for different proceedings to be commenced towards parties so insensible to the nation's wishes. As a member of the committee, I feel that it will soon be our duty to attend to your hint.—G. F.

**TOMBSTONES IN SCOTLAND.**—We are told that near Kinross, the lintels of a weaver's factory have been made from the tombstones of a neighbouring burial-ground; and upon the chimney-top of a house by the side of the Perth road may be read the inscription, "Here lies the body of Margaret" &c.!

**FOR THE SCOTTISH NATIONAL GALLERY** at Edinburgh, Sir W. G. Craig has obtained leave to bring in a bill.

**STONE-HEAPS: COMPENSATION.**—At Carlisle Assizes a widow has been awarded 300l. from the county bridge surveyor for the death of her husband, upset in a gig by a stone-heap on the high road.

**STATE OF HEATHFIELD CHURCH.**—In travelling through the villages of Sussex, I was much surprised to see the wretched condition of many of the churches, especially that of Heathfield. Many of the pews there have no other flooring but "mother earth," and the external ground being higher, in wet weather the water oozes in and emits a pestiferous odour. The roof of the aisle affords no protection from the weather. A large square-headed wooden window has been erected on the aisle roof; the rose windows in the clerestory blocked up, and three-light wooden frame windows inserted; a large Roman gallery graces the west end of the interior, and blocks up a charming arch of the second pointed period. The whole of the inside has been thickly covered with whitewash (columns and arches included). The spire is 18 inches from perpendicular, and is in a dangerous condition. The church is nearly deserted, its congregation being seldom more than thirty, though formerly six hundred. What can be done to preserve the building? Would an appeal to the rural dean be of any use?—CLIO.

**NEW BUILDING IN BOSTON, U.S.**—On the site of the "Old Liberty Tree" in Boston, a tree connected with the early history of America, a large block of Stores has been erected, with a representation of the tree in a panel on the front. The building is of brick, four stories in height, with a front of 90 feet on Washington-street and 77 on Essex-street, and covering about 9,000 feet of ground. It was built under the superintendence of Mr. Amos Coting. In the second story is a hall 75 by 30 feet; in the third story another *monstre* hall, 80 feet long, 40 wide, and about 30 from the floor to the ceiling,—with two large drawing-rooms, and a supper-room 75 by 30 feet, contiguous—calculated for the use of balls, levees, public dinners, &c. The fourth story also comprises two halls, one 75 by 30 feet, and the other 60 by 40, with convenient drawing-rooms, and the whole amply lighted from the roof.

#### TENDERS

Received for the new wings to be added to the North and East Wings of the Palace of Justice at Clifton, near York. Architects, Mr. J. B. and Wm. Atkinson.

For the whole works.

Brown	.....	£2,875 0 0
Samuel Atack	.....	4,335 10 0
Harlow	.....	4,890 0 0
Pulley and Son	.....	4,305 0 0
Wm. Deighton	.....	4,350 0 0
Relph and Akeroyd	.....	4,245 0 0
Accepted tenders as subdivided	.....	£4,244 10 0
Accepted Tenders—		
Masonry, brickwork, &c., by Noah Akeroyd	.....	£2,693 0 0
Carpenters' and joiners' work, by Wm. Belcher	.....	819 0 0
Plastering and Whitewashing, by R. Knowlson	.....	110 0 0
Plumbing, glazing, and spouting, &c., by R. Walker	.....	385 0 0
Ironfounders' work, by John Walker	.....	147 10 0
Painting, by Frank Moore	.....	70 0 0
		£4,244 10 0

Tenders for the Birmingham New Workhouse. Messrs. Drury and Bateman, architects, Birmingham. Opened, March 1, 1850.

Hill, Wolverhampton	.....	£23,931 0 0
Pashby and Plevins, Birmingham	.....	32,910 0 0
Webb, Birmingham	.....	32,737 3 0
Burton, London	.....	32,515 0 0
Davis, Birmingham	.....	31,900 0 0
Hickman, Wolverhampton	.....	31,854 0 0
Hardland, Wolverhampton	.....	31,515 0 0
Cresswell, Birmingham	.....	31,511 19 24
Greenall, Erdington	.....	31,150 0 0
Heringe, Warwick	.....	30,934 1 0
Kirk and Parry, Stamford, Lincolnshire	.....	30,500 0 0
Hardwick and Son, Birmingham	.....	30,262 7 44
Heubertow, Carlisle	.....	29,600 0 0
Briggs, Birmingham	.....	29,563 0 0
Branson and Gwyther, Birmingham	.....	27,998 3 4
Tregoe, London	.....	27,875 0 0
Sissons, Hull	.....	26,989 0 0
Ferguson, Nottingham	.....	26,930 0 0
Glenn, London (accepted)	.....	24,920 0 0

For a House and Farm-buildings for the Rev. Wm. Chafy, D.D., Feltwell, Norfolk. Mr. Hannell, architect.

Hutchinson, March	.....	£2,809 0 0
Mills and Son, Whitless	.....	2,483 0 0
Smith and Co., St. Ives	.....	2,457 0 0
Harratt and Co., Huntingdon (accepted)	.....	2,315 0 0

For a house for J. Warner, Esq. Mr. Allen, architect, St. Ives.

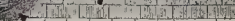
Oates, Cambridge	.....	£1,325 0 0
Bell, ditto	.....	1,275 0 0
Bunting, St. Ives	.....	1,169 0 0
Mills and Son, Whitless	.....	1,157 0 0
Harratt and Co., Huntingdon	.....	1,195 0 0
Bennett and Son, Whitless (accepted)	.....	1,117 0 0

#### MEETINGS OF SCIENTIFIC BODIES

To be held during the ensuing week.

TUESDAY, April 2.—Institution of Civil Engineers, 9 p.m.  
FRIDAY, 5.—Architectural Association, 9 p.m.





**SAMUEL HOOD and Co., Castings Ware-**  
house, 51, Upper Thames street. REGISTERED STABLE  
FITTINGS. Enamelled Mangers, with double hay-racks, or with  
enamelled water-cisterns on one side—Also, girders, columns, hot  
water pipes, rain water pipes, caves, gutters, such weights, &c., at the  
lowest prices.



100

This image shows a blank, aged, cream-colored page, likely an endpaper or flyleaf of a book. The paper has a slightly textured appearance with some faint smudges and discoloration, characteristic of old paper. The left edge of the page is bound into a dark, textured cover. There is no text or other markings on the page.



# The Builder.

No. CCCLXXIV.

SATURDAY, APRIL 6, 1850.

**T**HE destruction of St. Anne's Church, at Limehouse, by fire, on Good Friday, suggests a point or two for consideration, and ought to serve as a warning and preventive. St. Anne's, Limehouse, was one of the fifty churches erected by Act of Parliament in the reign of Queen Anne, and was designed by Nicholas Hawksmoor. It was commenced in 1712, completed in 1724, but not consecrated until the 12th of September, 1730,\* in which year the parish was formed by Act of Parliament out of the hamlet of Limehouse and part of that of Ratcliffe, original appendages to the parish of St. Dunstan, Stepney. Stowe speaks of "Lime-hurst or lime-host, corruptly called lime-house;" and Pepys has the following note under the date 9th October, 1661:—"By coach to Captain Marsh's, at Limehouse, to a house that hath been their ancestors' for this 250 years, close by the lime-house, which gives the name to the place."

St. Anne's is a (Portland) stone church of very large size (called 145 feet by 78 feet in gross), with a lofty tower and steeple: it had four stone composite columns inside carrying the ceiling, and is said to have cost 38,000*l*. The east window contained a painting on glass by Buckler, "Christ Preaching on the Mount;" and there was an organ, built by Bridge, which cost 1,000*l*. Nothing of these remain but the memory. The interior of the church is wholly destroyed. The fire broke out between the ceiling and the roof; the roof fell, and everything below that was combustible was burnt. Much of the stone-work is calcined, including part of the steeple, high up.

Now as to the cause. We journeyed eight miles out and eight miles back the other day to look at this for ourselves, but the chief fireman in charge, although we told him our errand, would allow us no glimpse inside, and was not in a fit state for us to discuss the question with him to any purpose. We must take, therefore, the statements of others.

The interior of the church is approached by a lofty flight of steps, and in consequence of this elevation, the vaults are above ground, with the exception of about 3 feet of their height, and have, at the end of paved passages which traverse them, windows opening into the churchyard. In these passages at either end of the church stand hot air stoves, by means of which the edifice was warmed. They were fed with air from an opening made for the purpose in one wall; and the smoke descending, first passed through a flue underground to the opposite side of the church, where it entered another flue in the centre of the main wall, having an escape on the roof. This latter flue, which is about 18 inches square, in a wall of 4 feet 6 inches thick, was part of the architect's original design. There are four such in each wall, and their purpose appears to have originally been to ventilate the vaults. When the present stoves were put up, use was made of one of these flues on each side of the church for the escape of the smoke from the furnaces. About five

weeks ago, in consequence of the descending flues frequently becoming stopped up, an iron pipe 12 inches in diameter was substituted for the common brick flue previously connecting the furnace with the old flue in the centre of the wall. A small furnace was also inserted at the junction of the iron pipe with the wall, where the stoker has been accustomed, when about to light the fires, to burn a handful of shavings, in order to get the damp air out of the flue traversing the wall. The draught was very strong, and probably carried up the shavings in a state of ignition. Now examination, it appears, has shown that the end of one of the girders supporting the roof, actually entered the flue, at the north-western corner of the church, and it is unnecessary for us to say, if this be so, the beam, too, being thoroughly dried by the continued action of the fire, perhaps even decayed, that the cause of the destruction of the church is tolerably obvious.

The fires which have been originated by timber being let into flues, apparently too far from the fireplace to be dangerous, are not to be counted. In a sixteenth century building, wherein works are going on under our direction, we found last week a piece of timber in the face of the chimney-breast, put in to relieve the lintel over the opening of the fireplace, and forming, in part, one side of the flue. It was black and charred, and although it had led to no evil consequences during many years, might next week have caused the destruction of the building.

In the case of Limehouse Church, if the statement be correct, no blame attaches to the architect: the flue was for ventilation, not for a furnace; and the error was committed by those who made the fire communicate with it, without first taking proper precautions.

The principal object we have in view in noting this occurrence, is to induce a proper examination, by professional eyes, of the city churches generally, with respect especially to the means used for warming them. Several of these churches are exposed to great danger by the position of iron smoke-pipes, introduced to the great disfigurement of the building, and passing close to woodwork. We would exhort the authorities to be wise in time,—to remove the possibility of danger, so far as it can be foreseen, and insure the building.

The annual loss to the community by fire is something enormous, and, unfortunately, the experience gained so dearly, produces little improvement. The recent destruction of an immense amount of property in a Manchester warehouse, in a singularly short time, ought to produce an alteration in the mode of constructing these buildings; yet in all probability the old course will still be pursued. If it were desired to construct a building capable of being burnt down in the shortest possible time, a better model than that offered by some of the Manchester warehouses could scarcely be hit on,—with its large well-holes, wooden staircases, and continuous wood linings and casings.

To return, however, to Limehouse Church. Judging from the exterior of the building, we should say the walls may be kept standing; and, fortunately (this should serve as another hint to churchwardens), the edifice was insured at the beginning of the year, as we are told, in the face of some opposition, for 5,000*l*.—so that the expense to the parish will not be ruinous. Had the steeple fallen, we certainly should not have counselled restoration. It is an incongruous and inharmonious composi-

tion, very far inferior to other works by the same architect, and has little to recommend it beyond something of grandeur resulting from its size and mass. In St. George's, Bloomsbury, and St. Mary Woolnoth, Lombard-street, Hawksmoor established his claim to be considered a man of genius and skill: if the evidence had been confined to St. Anne's, Limehouse, our verdict would have been different.

Hawksmoor (few of our readers will need reminding) was placed with Sir Christopher Wren, as a pupil, in his 17th year (he was born 1666, the year of the great fire), and was afterwards deputy-surveyor under Wren, at Chelsea College, and clerk of the works at Greenwich Hospital. He was appointed superintending surveyor to all the new churches after the death of Wren, and is said to have been associated with Vanbrugh at Blenheim and Castle Howard. Like that poet-architect, whom, too, he in some degree resembles in style, his fame long suffered from an epigram, but has now outgrown it.

## THE ARCHITECTURE OF THE DAY.

MUCH has been already said on the architectural vices and follies of the age, and some points in the following paper have doubtless been touched upon by others; I have, however, restricted it to the expression of my own views on the subjects adverted to. As these refer chiefly to design, I would first observe, that this is the highest department of the art, which gives it its greatest dignity, and calls for the noblest faculties of the mind. Judgment, taste, fancy, feeling, imagination, are all called into play in designing a perfect edifice, which is a production of "the vision and the faculty divine," and is of the same category as an epic, a statute, a picture, or a symphony. The claims of architecture to the respect of mankind are of a peculiar nature: unlike its sister arts, painting and sculpture, it is also a science: it has to satisfy the material wants of man, his social and sanitary requirements. Art, however, is greater than science, and the architect has cause to be proud of his connection with it. This is a feeling in which, of course, the student may participate, and not only the student, but the operative, may share it. Art sheds a halo around the lowest of her votaries, and to make this more generally understood, would perhaps be to furnish the means of hal- lowing and ennobling the minds of thousands, and snatching many a victim from the jaws of vice. Nothing is more common than to see intelligent workmen taking an interest and pride in the scientific part of their work, beyond the mere discharge of their duty, or the obtaining of their livelihood: why should they not in the artistic? The mason or joiner would certainly be none the worse if given to know the true nature and relations of his daily occupation; that, though his own part may be comparatively humble, and mechanical, it is a vehicle, or may be so, for the intuitions and inspirations of genius. Such a knowledge might inspire him with greater zeal to attain to excellence in his work, which is by no means unimportant. No architect is quite independent of the mechanic for his reputation. The production of the beautiful is, in some measure, dependent on the efforts and feeling of the workman. To produce a perfect work all employed must go hand in hand: one feeling should animate them. Holding widely different ranks, they yet, with torch in hand, form one grand procession to the shrine of the beautiful. But, to my immediate subject.

The great objection that has been urged against the architecture of the present century is, direct undiscriminating imitation of ancient buildings, to the neglect of originality, consistency of character, and other qualities. On this I would offer a remark *en passant*:—whilst acknowledging the servility of direct imitation or copying, yet I consider a broad estimate of the recent state of architecture would look upon this and the precisions of style to which it gave birth, as a step in the right direction,

\* Malcolin's Londinium Redivivum, vol. iii., p. 81.



as a servitude which, though neither creditable to the originality of taste, nor, if persisted in, favourable to the progress, of the individual architect, is still (if regarded, as I think with respect to the entire history of the art it should be, as a stepping, not as a standing stone), one which establishes the fact of progress, and holds out the promise of ultimate freedom. There was a danger of the art getting fixed on this stone as on a pedestal, petrified, if I may so speak, for looking back; but that danger past, the most rigid copy of a correct building, in any authorized style, among our recently-erected churches, if considered comprehensively as regards our present architectural status, should be looked upon as a decided advance beyond the brickbuilt barns or architectural hybrids which bygone years erected to the honour of religion. It is at least indicative of,—let, a return from absolute architectural nonentity to something of definite style; and 2ndly, a cause of the praiseworthy restoration of our ancient architectural gems to their primitive lustre,—many, too many of which, under the combined influence of time and of quasi-church-beautifiers, bade fair to sink into a state of architectural idiocy. Something of this matter, both as to bane and antidote, has been seen in our time in Oxford. It is not long since the visitor entered Weynflete's beautiful Gothic quadrangle of Magdalen College through a Doric gateway,—when, standing beneath the vaulted roof of his ante-chapel, he gazed up to the flat expanse of whitewashed plaster with which a quasi-classical taste had ceiled his choir, whilst the college dignitaries, seated in their classically-moulded-and-panelled stalls, heard the "pealing organ blow" from out a classic organ case, in a classic organ loft supported on fluted Corinthian columns. Whilst admitting, therefore, the impropriety of this direct conventionalism as a persistent practice, we should still, perhaps, looking at what has been, be led to view it as an omen of good promise as regards what shall be hereafter.

But, in whatever light this be considered, it is unquestionably true that we are now moving in the right direction: many buildings have sprung up around us, under the influence of a better light, which will not discredit the age we live in, nor the land either. Some lately erected in London, Liverpool, Manchester, and other towns, are, in many respects, of the genuine stamp. Perhaps the chief thing that could be urged against many of our recent provincial erections is their diminutiveness: our churches and chapels, after visiting the great buildings of London, or the mediæval and academic structures of Oxford and Cambridge, look too much like models. In reference to one or two meritorious compositions of late erection, I would say, fewer and larger parts would have been preferable: had they been one and a-half or twice the scale, they would not only have been beautiful but imposing and powerful. Size is an element of power in architecture: beautiful curves and groupings, fine proportions and rich details, will please, but not astonish and impress,—which it is within the scope of architecture to do. Too often, architects are overuled; though I am convinced that, if they were true to themselves, they might create more deference, on the part of their employers, to those great principles on the observance of which must ever repose the wellbeing of art, and the honour of its professors.

But though we are, doubtless, advancing,—to look back and detect the faults which we have been committing, and are still occasionally committing, to criticise existing buildings, and expose their shortcomings, descending, at the same time, on their merits, I consider by no means an unprofitable employment. While it is done in the right spirit and under such conditions as to avoid the possibility of giving personal offence, it is perhaps the best mode of illustration that could be adopted.

One of the greatest defects of our present practice is incompleteness; we make niches, but put no statues in them; on pediments we place the pedestals, without the figures, of the acroteria; chimneys, the most prominent objects, are without decoration. One of the chief difficulties with the designers of classic and Italian villas, and town buildings in general, has been the chimneys, which in general are suffered to deform the roof, instead of being

called into play as ornaments to vary the outline, and give lightness and elegance to the composition. Any object obtruding beyond the general line of building, upwards, should be of a light and ornamental character; such a feature seems by its very protrusion to entreat us to decorate it; but, generally speaking, no attempt is made to render it pleasing to the sight, which could as well be done in the classic or Italian styles as in the Tudor; chimneys are, therefore, generally eye-sores. On this subject my advice is, ornament the chimneys, do not attempt to hide them, even in the most decorated classic designs. They are no disgrace to the exterior, any more than the hearth and fire-place are to the interior; nor need roofs be hid or gables omitted, both may be taken advantage of in the composition. As to the chimneys, heed not their upper part growing black with smoke—that, in domestic buildings, will but give the warm and comfortable appearance which should characterize dwellings; all marks of use, time, and weather contribute to the picturesque. It is quite absurd to sneer at the association of Greek pediments or Corinthian columns with English, or rather modern chimneys; had the Greeks known the comfort of our fire-places in their houses, would they have deemed it necessary to omit the portico to make way for the chimney? All we have to do is, to give them an agreeable form and finish, make them worthy of the company they are introduced to, and produce a harmony between them and the essentially decorated portion of the edifice.

So far from chimneys being any real objection, we in fact want objects so protruding: where there are many breaks in the front, by projecting or receding parts, they are not so much called for; but in straight, unbroken façades, they are useful in giving a varied outline to their summits. One objection I have heard urged against classic buildings is, that we cannot have a picturesque sky line; but the impression has arisen from a paucity of invention shown by their designers, in neglect not only of the chimneys for this purpose, but of providing other means. Nothing for the purpose is so beautiful as statues, and this is equal to Gothic finials, or any other termination used in any style; accordingly, on the apex and at the foot of pediments, and along the summits of façades, over columns, pilasters, and piers, in buildings of great pretension, statues are introduced; but, of course, the expense precludes their extensive employment. In the same position, on buildings of less pretension, urns and vases are used,—in the design and form of which very little diversity prevails, but scarce any other crowning object seems dreamt of. Busts are less expensive than statues, and would, properly elevated, form effective terminations. But the multitude of beautiful objects of the animal and vegetable kingdom are forgotten. What gracefully formed quadrupeds, in various attitudes, might be selected for this purpose! What still more graceful objects are presented by the feathered creation; while, to many of these, as indeed to quadrupeds, associations attach that would render them assisting to our purpose of characterizing edifices, used either symbolically or otherwise. On the garden side of a country house, doves, and other peaceful birds, would be appropriate finishing ornaments. Not to speak of the creatures of "fancy's world," what beautiful objects for this purpose might be formed by grouping flowers and fruits. Graceful knots of foliage might terminate the apex of a small classic pediment, as well as of a Gothic canopy; groups of objects or articles illustrative of the purpose of the building might be also used. But, without imitating nature at all, what a rational and delightful source of ornamentation have we, for this purpose, in geometrical figures!

But the want of completeness to which I would most earnestly call attention, is manifested in the interior of our buildings, which in general exhibits decoration in no respect fulfilling the promise of the exterior. Disappointment is the uppermost feeling on entering many a building on whose exterior we have dwelt with pleasure; some are not in good taste, others are in an inferior style, while a third description presents a poverty of interior fitting, that ill accords with the expensive masonry without. The ceiling is, perhaps, the part of an

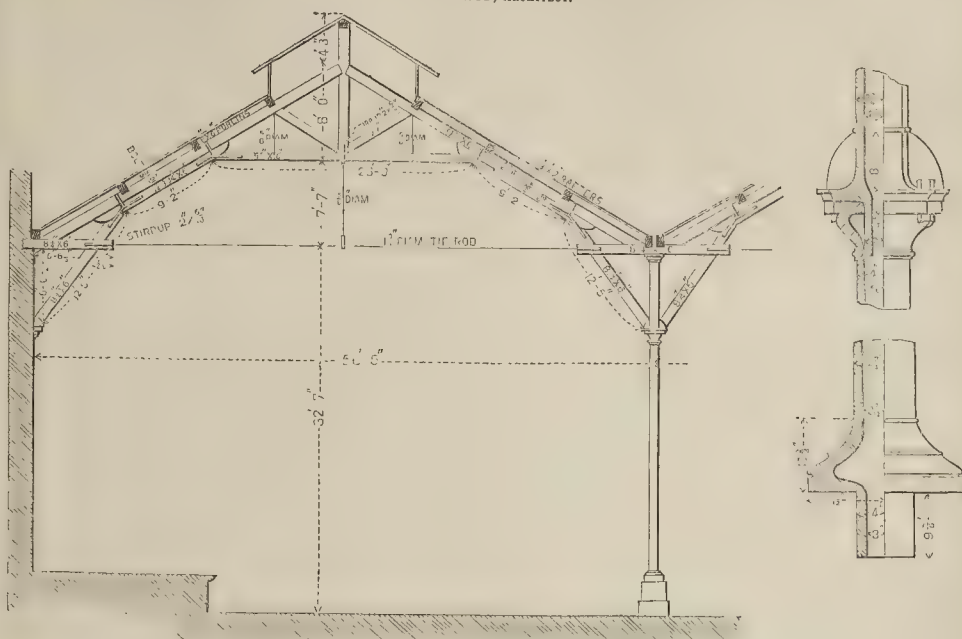
apartment that calls most loudly for decoration, and no architectural feature is more susceptible of it, where it might be introduced with more effect, or give more pleasure to the inmate; yet this feature we almost invariably neglect. We naturally look up for beauty; however lovely the earth, the sky, both night and day, presents us with greater charms; we are cheered, in our out-door hours, by its ever-changing picture, for which a flat white plan is a miserable substitute in our in-door life. To houses of the very highest class these remarks will apply, for it is a feature which has not had its due proportion of attention, in point of decoration, in any class of buildings, from the cottage to the palace. There can certainly be no more fitting place for decoration in the habitation of a being created upright: can inconsistency be more extreme than that presented by thousands of apartments, where a rich, elaborately decorated carpet is under the feet, and a plain, dead, flat ceiling above? In the interior of Arabian buildings the ornaments almost invariably become richer, more delicate and minute, as their height from the floor increases; and the most exquisite productions of the artist are lavished on the ceiling.

With respect to the form, the curve is at all times preferable to the flat, though the latter, by various means, is capable of great beauty also. No very great additional height is required in order to have a curved ceiling, as, whether coved or segmental, the rise need not be very great. For rooms of great pretension there is no form more noble and natural than the vault and dome, particularly the latter, whether hemispherical or segmental, as far as it suits the plan, or can be adapted by pendentives or otherwise. It is the best substitute for the blue vault of the sky, the starry concave of the heavens. It was a fine idea of the builders of the mosque of Saint Sophia at Constantinople, a conception in advance of ours, to make the curve of its dome so flat that it should seem to correspond with that of the sky, and be a portion of the firmament. We want an enlarged, improved, enriched, and, at the same time, inexpensive system of interior decoration, for domestic and ecclesiastical, commercial, and other buildings, in our Anglo-Classic styles. For churches, collegiate, and other buildings, in the Pointed style, we have examples in our cathedrals and other buildings which prove that the genius of interior decoration was once amongst us, as well as the taste to employ it. At Henry the Seventh and King's College Chapels,—the oratory at Beauchamp Chapel,—the Temple Church,—Wolsey's Hall, Hampton Court,—Christ Church Hall, Oxford,—Westminster Hall,—and others, we have ceilings and roofs that might vie with any that Europe could show. For assistance in evolving a system of classic decoration, we might look to some parts of the continent. Exterior decoration there, has sometimes, probably, been carried too far,—a few continental edifices exhibiting ornaments so minute and fragile as to seem at least unfit for exposure to the weather in any climate. But this could not be said of interiors. The Moorish or Morisco-Spanish architecture suggests to us what richness might be produced by very simple means; their icicle pendants, inlays, and casings, and purely geometrical and imaginative ornaments, are very effective, and with them they often produced greater results than we, with all nature to imitate, have attained to. But the art of interior decoration was better understood, and more successfully practised, in the great age of modern art in Italy, and, indeed, throughout the Middle Ages, than at present in any country. We never had any decoration to be compared with the mural and fresco paintings of the Italians, and there is probability in the supposition that their system was obtained from remains of the ancients, which time or violence has not spared to us. Beside the curved and richly-embellished ceilings produced by the Italians, and the pictorial embellishment of their walls, ours might symbolize poverty itself. The ceilings of the principal apartments of a Roman, Genoese, Venetian, or Florentine Palace, were considered as most important features,—and on their design and execution the highest talent was employed. In ecclesiastical buildings the contrast with ours would, I fear, be still greater. Whilst the interior of the churches of Italy glow with



## ROOF OVER THE NORTHERN RAILWAY, PARIS.

M. REYNAUD, ARCHITECT.



Principals, 16 feet 5 inches apart, centre to centre.

every rich hue of the marble quarry, and are virtually galleries of art, what is the aspect of yours?\*

SAMUEL HUGGINS.

## ROOF OF THE NORTHERN RAILWAY, PARIS.

THIS roof, erected over the arrival and departure sheds of the Northern Railway, from Paris to Brussels, is in two spans, each of 56 feet 5 inches from walls to centre of columns. This range of columns thus forms the centre line of the shed.

The merit of this roof lies in the fact that all the scantlings and the lengths of the timbers are such as are suited to the dimensions of the timber brought to the Paris market. It is to be observed, that in Paris the continually augmenting price of oak renders the use of Baltic timber almost imperative. But the state of credit in France (not only since, but also antecedent, to the late revolution), prevents the introduction of the first-class Russian timber, which finds a better and readier market in England. In Paris, therefore, it is very difficult to obtain large scantlings; and M. Reynaud has very wisely adopted those which admitted the employ of the smaller and cheaper Swedish timber usually met with.

The Swedish timber is certainly not so sound nor so durable as the Russian; but it is much cheaper, in the proportion of 86 to 106. Its usual scantlings are about 36 feet in length, by from 10 inches to 1 foot square.

The practice of the French architects is to make the common rafters only 3½ inches by 2 inches, and to admit them of Norwegian timber. The French slates are so much lighter than our own, that it is unnecessary to use the same sized rafters we do. The usual space from centre to centre of rafters is 1 foot.

The Northern Railway, however, is covered with boarding and zinc,—No. 15 of the French gauge.

The columns are of cast-iron, and serve as descent pipes for the rain-water,—a very bad system, by the way, for it is extremely difficult

to examine or repair them, if any engorgement take place.

The appearance of this roof is very light; but it may be questioned whether there be not too much wrought-iron for one exposed, like this, to the sulphureous vapours of the locomotives in steam. Indeed, we may question whether it be not a very great error to use wrought-iron with the prodigality we are accustomed to in such situations.

## HOW SHALL WE BUILD OUR CHURCHES?

MR. PUGIN, in his letter headed, "How shall we build our churches?" commences by declaring his adhesion to the "important principle of reality, both in design, material, and construction," a principle which I also maintain to be the only one admissible in connection with the erection of a Christian church, but which principle, fairly carried out, affords one of the strongest of arguments against the adoption of the favourite model for a Christian church.

Mr. Pugin asserts that the mediæval model is the most perfect exposition of Christian truth, whose mysteries it symbolizes in its plan, arrangements, and minute details. I, on the contrary, affirm that this model is a false one, false in its arrangements, false in its symbolization, utterly opposed to the spirit of the primitive models, utterly opposed to the first principles of Christianity—positions which I not only affirm, but am prepared to prove—to prove not only theologically but architecturally.

The first converts to Christianity were either Jews or Pagans, both having no other idea of religious worship than as connected with temples and temple rites, with which notions the men of that age were so completely imbued, that to dispossess them of these views must have been a shock as great to their moral feelings as the stripping the skin from their bodies would have been to their physical sensation. It is scarcely then within the bounds of probability that any honest man, if sane, could believe that the Christian converts would invent or adopt an entirely new model for religious structures, if the old one had been deemed suitable.

No greater incidental proof could be adduced of the great difference in spirit between the Christian system and the Jewish and Pagan, than in the notorious fact, that the model all but universally adopted by the primitive Christians, was so diametrically opposed in its arrangement and use to the temple model. The leading characteristics of the latter consisted in its sanctuary, or holy place, in its altar with a material sacrifice, and in its exclusion of the worshippers; the priests only being admitted within the sacred precincts. The leading characteristics of the former are so many absolute negations of temple arrangements; the church containing nothing resembling the nature of a sanctuary, nothing even to remind men of an altar, and the believers were all within the structure, which for centuries was all but invariably an adopted or a constructed room, thus bearing incontrovertible evidence to the great Christian verity that the Christian system was a social one, that its members were intended to form one great family; the aggregated families composing the whole, having the same relation to each other collectively, as the individual members of each such family occupied in "the church which is in every house,"—a significant phrase, which, to a candid mind, is sufficient to prove the nature of the relation that existed between the flock and their presidents or ministers, who were the chosen representative fathers of the congregated family, and as such, occupied the seat on the platform at the end of the room, such platform being called the chancel, from the low railings, or *cancelli*, which, to prevent the occupant of the platform from falling, stood at the edge of it. From this chancel, or platform, the president always addressed the assembly, or, in other words, preached to them; and on this platform the communion-table was not placed, but occupied a position in the midst of the congregation.

Mr. Pugin speaks very sneeringly of *conventicles*. Is he ignorant of the fact that this was one of the earliest designations for a Christian place of assembly? the word being derived from *conventus*, an assembly or meeting together, the very word which originated the term "convent," and for which "a meeting-

\* To be continued.



house" is a synonymous translation. Bearing in mind the scriptural definition of the church, "a congregation of faithful men," the selection of a room as the model for the conventicle, or church, as it was sometimes called, and the fact that this model was so completely opposed to those for all previous places of public worship, who can resist the conclusion that this primitive church model, adopted all but universally for the first seven centuries, was considered the most suitable for the due exposition of Christian doctrine; and being suitable then, *why is it not suitable now?* How is it that there is such a marvellous difference in primitive church plans from mediæval church plans? Are they both suited for the rites and doctrines respectively taught in them? Then, if so, they afford the most striking evidence of an astounding difference in the respective religious systems which could dictate two such opposite ideas of religious worship as are embodied in a basilican "conventicle," and a Gothic cathedral.

The former structure negatives the very idea of any distinct class of priests, or of any material sacrifice, either without the other being, to Jew or Pagan, a transparent mockery; but the Christian converts, imbued from infancy with Pagan notions, living in an atmosphere of Paganism, were subject to fearful temptations to mix and entwine Pagan errors with Christian truth. Slowly and insidiously did such perversions creep in, but it took many centuries before they obtained such hold of the church as to induce the alteration in church plans which eventually took place. The old precedents were in too great numbers in Italy to admit there of that vital change in doctrine effecting corresponding changes in church arrangements; and it is therefore in countries converted after the errors had obtained sway, that we find these errors building themselves significant abiding places in the great churches and cathedrals of the middle ages, which thus became so many petrifications of the corruptions so awfully deforming the pure features of Christianity. Wherever the old basilican conventicles exist, there we find that every thing in them lending the least countenance to corrupt views of Christianity are innovations, "unreal," having no connection with the structure; but in France, England, Germany, there we find these innovations becoming essentials in the framework constructed portion of it; there we find chancels growing into "transubstantiators," low railings growing into exclusive screens; the wooden moveable table petrified, and transmogrified into a constructed altar; there we find those whom the apostles addressed as "*partakers of the heavenly calling, kings and priests unto God*," abjectly, pitifully degraded from their high position, and their ministers, changed into priests, boasting that their proper position was with their feet on the necks of kings,—a state of things which fully justified Bishop Durandus in asserting that the pavement of the nave symbolized the people who were to be trodden under foot, while the chancel symbolized the priests who were to be held in great honour.

Will Mr. Pugin venture to put on paper any explanation of the extraordinary difference between the ancient model and that which he so zealously advocates and so coolly calls "Catholic?" Will he venture to give a common-sense reason for designating a style as "Pagan," or "Christian?" Plans of religious structures have been originated or influenced by doctrines, but no style of architecture ever was; and the absurdity of supposing such a thing is as great as that of maintaining a book to be Pagan if written in a tongue once invented or used by Pagans. The exquisite beauties of the Gothic style I most fully admit and enthusiastically admire, but I utterly deny its connection with the spiritualities of Christianity.

JOHN ELLIOTT.

**REBUILDING OF THE TEMPLE OF JERUSALEM.**—It is stated in the *Berliner Allgemeine Kirchen Zeitung*, that the Jews have obtained a firman from the Porte, granting them permission to build a temple on Mount Zion. The projected edifice is to equal Solomon's temple in magnificence. Millions of money are said to have been collected for this purpose in America alone. (?)

#### REMARKS ON THE ASSYRIAN SCULPTURES DISCOVERED BY DR. LAYARD, AND ON SOME PECULIARITIES OF ASSYRIAN ARCHITECTURE.\*

THE style of art which characterizes all the ornaments on the marbles now in the British Museum offers us a subject of curious inquiry. What relation does it bear to other styles? To what extent is it original? And to what extent does it appear to have influenced other succeeding styles known to us? Major Rawlinson, who has fortunately succeeded in mastering to a great extent the difficulties that have hitherto hidden from us the knowledge handed down in the strange characters that cover these and other remains, entertains no doubt that the earlier ruins from whence these sculptures have been derived bear the extraordinary date of twelve or thirteen centuries before the Christian era. The sculpture therefore is probably as old as most of the Egyptian antiquities we possess; yet the style of the ornaments, although certainly partaking somewhat of Egyptian character, is in many respects widely different from it. The borders of the linen wrought in successive stripes, and those stripes subdivided into a succession of squares, is certainly an Egyptian peculiarity, prevalent in this Assyrian costume. Indeed the people of the two countries, although widely separated from each other, may most probably have interchanged commodities, and goods of so portable a kind as bales of linen may well have found their way from Egypt to Assyria. We have the incontestible and contemporary evidence of Ezekiel, that Egypt furnished "fine linen with embroidered work" to the merchants of Tyre, who it may be presumed supplied the markets of Nineveh.

The honeysuckle ornament so abundantly used in the sculpture under consideration is, I believe, nowhere seen in early Egyptian work. Nor are there any traces of resemblance between Assyrian and Egyptian design in the beautifully and freely-drawn figures of animals so profusely introduced into their work by Assyrian artists. We seek in vain here for those stiff and formal and very peculiar ornaments round the neck, consisting of a continued repetition of strokes of the pencil, which we see constantly recurring in Egyptian work, especially on the mummy cases. The Assyrian artist seems to have completely relieved himself from the rigid conventional manner of the Egyptian, and to have acquired considerable facility and freedom of execution: examine the slightly etched figures of winged bulls and other animals pervading the dresses of almost all the larger figures on this sculpture, and we find them drawn, or rather sketched, in a style that would do credit to the best artists of the present day; and when we consider the enormous extent to which this mode of decorating the walls of their buildings prevailed, not only at Nineveh, but at other buried cities which have been recently explored in the same country, it seems fair to presume that the trifling and very subordinate details to which I have been adverting must have been the work of common and ordinary artisans.

Let us now compare the ornaments under review with the more familiar forms of Greek art: and here I think we find so strong an analogy, and in some cases such a striking resemblance, as to force upon us the conclusion that the artists of Greece derived far more of their art from the banks of the Tigris and Euphrates than from the banks of the Nile; and Egypt must, I think, relinquish a large portion of the honour that has been so long accorded to her of having been the mother of Greek art. The honeysuckle ornament already alluded to as occurring abundantly in this sculpture is both in form and treatment almost purely Greek.

The Guilloche scroll, so characteristic a Greek ornament, occurs very accurately chased on the scabbard of one of the swords of the Assyrian warriors. An ornament much resembling (although not identical with) the labyrinth fret, also appears etched as an ornament on a dress. The classical enrichment, commonly called the head and reel, is here of very common occurrence. The running ornament of animals and foliage grouped together, constantly occurring in this costume, is a perfectly classical feature.

\* Part of a paper read at ordinary meeting of the Institute of Architects, 15th ult.

While inviting attention to the germ and gradual growth of that beautiful system of decoration which has been handed down to us by the Greek artists and has been the object of imitation during succeeding ages, not excluding even the mediæval age, I am tempted to suggest whether much of it, perhaps almost the whole of it, may not have had its origin in the use of sacred emblems or in the representation of sacred objects.

The bull was deified in the earliest ages, and we see it carved in profuse variety as an ornament on these marbles. It occurs abundantly in the sculpture of Asia Minor, and in classic art became a favourite ornament. The lion, also, furnishes us with another very familiar instance of an animal deified by the Egyptians, and introduced by the artist in every variety of form as an ornament. The honeysuckle, which, under the wonderful influence of Greek taste, became so beautiful and so universal an ornament, is here found many centuries before the birth of Greek art, as representing the sacred tree before which the Assyrian priest is performing his religious rites. The fir cone, which plays so prominent a part in classical decorative sculpture, is in these marbles almost always held as an offering in the hand of the priest. The lotus is another familiar instance. We find it first the object of worship in Egypt, but afterwards converted into one of the most beautiful of all the forms of antique ornament.

The rosette, or patera, is perhaps one of the most universal ornaments in the whole range of art. It occurs in the paintings of the Egyptians, and is carved on Hindoo sculpture; it was embroidered on the garments of the Assyrians, and ornamented their armlets, bracelets, and even their whip-handles. Nor on the sculptured remains of Persepolis is it wanting. The rosette is painted on the fictile vases of all ages, from the earliest to the latest, and has ever been one of the most common of all the ornaments of architecture. May I not venture to claim for this form, also, a sacred origin? The winged circle was the emblem of the deity in Egypt, Assyria, and Babylonia. It occurs frequently in the marbles before us, and is usually filled in with what has the appearance of a rosette, but when the circle is large, we find the inserted figure to have a star-like form, or a radiation of tapering flames: may this not be supposed to typify the sun, the great and earliest object of idolatry? Is it not at least a plausible hypothesis that this figure, whether it be a conventional representation of the sun, or a star, may, in the course of time, have assumed, in the hands of the artificer, the varied and beautiful ornament with which we are so familiar?

Dr. Layard has remarked with truth on the very wide difference existing between the style of Assyrian architecture developed in these remains, and the architecture of Egypt. There appears here to have been an almost total absence of columns. Dr. Layard gives us a representation of one instance occurring in a bas-relief found in the ruins at Khorsabad, which he presumes to be of later date than those at Nimrod; and in the slabs in the British Museum one example occurs, wherein three pillars are introduced, but of proportions so slender as to lead to the presumption that they were of wood; a supposition the more probable, as they appear to support, not a horizontal entablature, but the frame-work of a kind of tent: it is worthy of remark, that these pillars have as their capital the horns of the goat so arranged as to suggest at once the Ionic capital, and the Khorsabad example is also of this type.

The absence of columns may possibly be due, in great measure, to the flat, alluvial character of the district between the Tigris and Euphrates, which furnished the soft alabaster of which these slabs are formed, but no hard building stone suitable for columnar architecture. Rooms, however, 35 feet and 40 feet wide, such as occur in the palaces explored by Dr. Layard, would not have been roofed over without a greater degree of constructive skill in carpentry than we have any reason to suppose was possessed in these early ages. Perhaps, therefore, the horizontal beams of which the roof was formed may have been supported by wooden pillars which are now perished, or which may have been burnt when these temples were sacked,—a fate which most



of them have probably undergone. That pillars were used to support the roof-timbers is the more probable, as it appears that the apartments were lighted from above by apertures in the roof, which would interrupt the continuity of the timbers, and render immediate supports absolutely necessary. It may be asked, why assume that the Assyrians were ignorant of framed trusses, by which the widest spans might be roofed over without the assistance of intermediate supports? We cannot prove the non-existence of trusses, but we certainly have no evidence that such artificial contrivances are of this remote date. We see no indication whatever of pitched roofs in any of the sculptures before us, nor, I believe, at all in Egyptian architecture. Even in the Lycian examples we do not find, until we come down to the Greek period of art, any example of a pediment, which is but the gable end of a pitched roof. These Assyrian palaces, then, had, as I presume, flat, terraced roofs, as we know the Egyptian buildings had: it is the present fashion of the East, and that it has ever been so there is abundant proof in the Scriptures. It was a law of the Jews that no roof should be built without a parapet, so that those walking thereon might be rendered safe. In the sculpture before us are various representations of small domestic buildings; they have no sloping roofs, but are rounded at top, as if formed of slight timbers bent round, which were probably wattled over and covered with mud like the wigwams of the present day. The pavilion, also, to which I have already adverted, appears to have had its covering stretched over similarly bent timbers. It does not seem improbable that the curved and pointed roofs of the Lycian tombs own a similar type, and are a marble version of a roof of bent timbers.

Dr. Layard discovered no indications of windows in any of his excavations; but that windows were used in Assyrian architecture is proved by the representation of them occurring in many of the slabs: nor can we imagine any other mode of gaining daylight in the lower rooms when buildings were of several stories in height, which, by these bas-reliefs, appears to have been the case. These windows are square-headed, generally, and have the peculiarity of a double or rebated external reveal, by which means, like the splay in Gothic architecture, additional light was gained, the actual apertures being narrow. This square sinking in the jambs of a window is, I believe, without a parallel in Egyptian architecture, and is not seen in purely Greek buildings; but it is singular that this is a feature pervading the very ancient tombs of Asia Minor, recently made known to us: many instances of it occur in the Xanthian marbles at the British Museum. Whatever may be the date of the marbles from Xanthus, they certainly appear to be a very remarkable link between Greek art and some other very different, pre-existing style.

The occurrence of circular-headed openings in the fortified buildings of Assyria, as plainly represented on these bas-reliefs, dissipates at once all ideas formerly pretty generally entertained of the comparatively recent discovery of this principle of construction. Dr. Layard mentions a brick vaulted chamber which he brought to light among the ruins at Nimrood, and other similar discoveries are reported to have been still more recently made by him. It seems a reasonable conjecture that the arch may have been first used in an alluvial country like that part of Assyria, where abundance of bricks were made, and where the difficulty of transporting from remote distances large blocks of stone, fit to form a straight lintel over a wide bearing, would render the substitution of an arch turned with bricks, or small stones, peculiarly convenient.

We may notice that tubular drain tiles were used in removing the rain water that fell through the openings in the roofs on to the pavements of the several apartments. That so obvious and simple a contrivance should have been resorted to by a people possessing great dexterity in the fabrication of fictile ware, and living in a district where the common soil of the country furnished the materials to their hand, seems so natural as scarcely to justify more than a passing remark; yet, is it not curious, that now, in the nineteenth century, and in England, a tubular draining tile is one of the most recent of novelties?

A thin stratum of bitumen is mentioned by Dr. Layard as occurring under all the floors, and passing, as he observed, under those sculptured slabs of alabaster with which the inner face of the walls was lined. He was unable to account for this, but the architect will at once perceive that this was a precaution taken to prevent the damp from arising from the earth under the pavement, and destroying the paintings, and endangering eventually the alabaster itself.

Reverting again to the representations of Assyrian castles on the slabs before us, I must not omit to call your attention to the crenellated parapets having battlements generally pointed or notched, as if to facilitate the use of the bow and arrow. Here also we find an analogous case in the friezes of the Lycian temple, discovered by Sir Charles Fellows, and now deposited in our museum. Castles are there represented with embattled parapets very similar to those in Assyria, and not unlike examples still subsisting in the east.

It has long been a subject of speculation what style of architecture characterized the first temple of Jerusalem. I think that it may be not unreasonably presumed, that the magnificent ruins now brought to light, after an interment of two or three thousand years, afford us a far better clue than any we have ever yet possessed: a much more intimate connection existed, both geographically and politically, between the inhabitants of Palestine and the people of Assyria and Babylonia, than with the Egyptians, from whom they were separated by the Arabian desert. Perhaps, too, the marbles under discussion will be admitted as evidence of an earlier civilization of art among the former people, and therefore of their greater influence in matters of taste. We have indeed the evidence of the Scriptures that Solomon sought his artists—his “cunning workmen”—in the region north of Judæa: Hiram of Tyre was his worker in metals, and his best carpenters were Sidonians.

With how deep an interest, then, these considerations seem to invest the sculptures from Nimrood! When, to use the eloquent words of Dr. Layard, we reflect that “before these wonderful forms, Ezekiel, Jonah, and others of the prophets stood, and Sennacherib bowed; that even the patriarch Abraham himself, may possibly have looked upon them,”—that works of such extraordinary interest and value should, after the lapse of thousands of years, have found their place in our national repository, is indeed a matter of just pride and congratulation, and I cannot forbear to express a confident hope that no exertion may be wanting on the part of our rulers, and of the nation generally, to second the indefatigable zeal of our countryman in securing for us still farther accession to this most important collection.

SYDNEY SMIRKE.

#### THE LIGHT AND HEALTH TAXES.

THE efforts of those who desire to abolish the abominable window duty should not be relaxed. Although passed over by Sir Charles Wood, the cause is not hopeless. We have reason to believe that the Board of Health have, both before and since the Budget speech, made some very stringent representations on the subject, and we are satisfied that there must be a modification.

Petitions should be sent to both Houses, and no exertions spared to get rid of a tax injurious to architectural progress, health, and morals.

The report of a committee of the Metropolitan Sanitary Association, appointed to inquire into the condition of the dwellings of the poor, the causes which have led to it, &c., states,—“That the health of the people being greatly dependent on an ample supply of light and air, the window-tax has had a tendency to diminish that supply, and to cause the erection of badly lighted and imperfectly ventilated houses,—a milk-and-watery expression on this important point, not at all likely to advance the association in the opinion of real sanitary reformers. If they would prove they are in earnest, they should forthwith send a petition to Parliament for the immediate abolition of the health and light tax.

The City Commissioners of Sewers, in reporting on Mr. Simon's reports last week, speak much

more plainly and properly. They say,—“We cannot pass this subject without recording an opinion that the operation of the window-tax is directly opposed to the sanitary interests of the population of the city, and that its continuance must, in a great degree, neutralize the effect of those exertions which your hon. court is making for the purposes of sanitary improvement. We find that it affords inducements to the construction of houses with defective supply of light and air; that it opposes great obstacles to the improvement of such houses as have already been constructed on a faulty principle; and that these circumstances tend to aggravate the frequency and malignity of epidemic diseases, and to increase the mortality of the population.”

Again we say, PETITION.

#### BRITISH ARCHÆOLOGICAL ASSOCIATION.

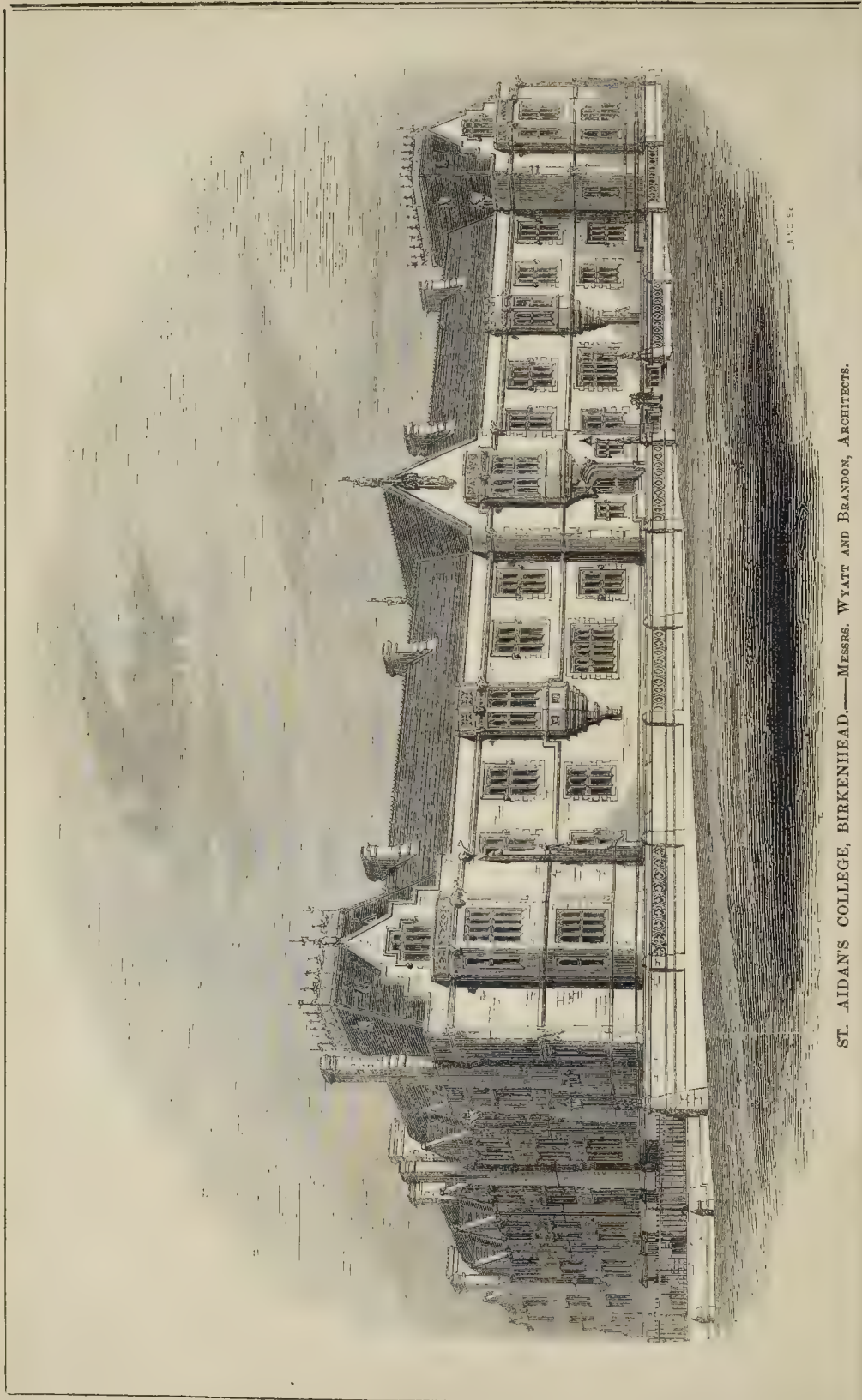
AT a meeting on the 27th ult., Mr. T. J. Pettigrew, V.P., in the chair, Mr. C. R. Smith exhibited various bronze ornaments, found during some excavations in Woolmer Forest, Hants. Mr. M. A. Lower exhibited an instrument in bronze, formed by the entwining of grotesque animals, which appears to have been the handle of a knife. Mr. J. Thompson exhibited a gold Roman coin of the lower empire, recently found among some earth which had been removed from the centre of the town of Leicester to the outskirts. It consists of two plates of metal, the edge of one plate overlapping the other.

Other exhibitions having been made, Mr. Cuming read a paper, on the glazed tiles of Alhambra and the east. He showed many points of resemblance between the tiles used in the Moorish buildings of the thirteenth and fourteenth centuries, and those found in Christian buildings of a later period, and he suggested that these two deadly enemies were not ashamed to borrow from each other ideas by which to ornament their religious edifices. Mr. J. Thompson forwarded an account of some interesting researches on the hitherto unknown site of the Abbey of St. Mary, near Leicester, lately undertaken by some spirited individuals in the neighbourhood. He found a large number of encaustic tiles. Sketches of one bearing the arms of the early earls of Leicester (the founders of the abbey), and another bearing a crowned head, were exhibited. This abbey was the burial-place of Cardinal Wolsey.

A communication was read from Mr. J. Rooke and Rev. W. Pattinson, describing an entrenchment near the line of the Roman wall from Walsend to Bowness, two miles from Dykesfield, and called Fauldsteads. It consists of two enclosures, and appears to have been originally of Roman construction, but used afterwards as a refuge for flocks, &c., from the incursions of the borderers. They also forwarded a drawing of a portion of a Roman altar found in the neighbourhood. Communications were received from Mr. C. Ade, of Alfriston, detailing the discovery of a Roman road between Lewes and Pevensey Castle; and from Mr. J. G. Lowe, of St. Alban's, describing further researches near the theatre discovered at Verulamium.

CAMBRIDGE “ORDERS OF ARCHITECTURE.”—A handbill notification of a pleasure excursion to Cambridge, by the Eastern Counties Railway, sets forth, that “those disposed for the trip will have afforded them the beautiful scenery and splendid orders of architecture of that classic city, comprising, among other views, King's College, Trinity College,” and other beauties too numerous to mention within the limits of a small bill, as Sylvester Daggerwood says. If we had not the fear of our admirable friend Punch before our eyes, who, jealous when we fall into a joke, calls *THE BUILDER* his “facetious contemporary,” we should venture to suggest that the writer of this handbill had heard of persons taking “orders” at Cambridge, and thought his visitors would of course expect to see what these were. He evidently had no clear understanding of what he was writing about,—and this is the point, joking apart, which leads us to note the nonsense. Strange to say, no one feels ashamed of knowing nothing about architecture.





ST. AIDAN'S COLLEGE, BIRKENHEAD.—MESSRS. WYATT AND BRANDON, ARCHITECTS.



## ST. AIDAN'S COLLEGE, BIRKENHEAD.

To the mission of which St. Aidan was the most prominent member, Saxon England is indebted for the conversion of a great part of the north, before St. Augustine set foot in the island.

A site has been purchased at Birkenhead, in the immediate neighbourhood of the park, on which it is proposed to erect, "with the highest sanction in Church and State, an extensive range of buildings as a collegiate establishment, similar in character to, and devoted to the same high and holy purposes as, the time-honoured universities of Oxford and Cambridge." The want of such an institution in the north-west of England has long been felt, and the heads of the Church consider this locality well adapted to promote the success of the project. Its object is "to combine theological and general education with the pastoral care of the masses of the people, the extension of missionary exertion, and other works of Christian piety and usefulness, in accordance with the doctrines and discipline of the Church."

The college will consist of a patron, visitor, council, and board. The Liverpool Foreigners' Mission will be connected with the college. Its chaplains will be the professors of languages in the college. This mission has already accomplished the care of the German, Italian, and French sailors and residents in Liverpool. The formation of this college originated with the Rev. Joseph Bayley, A.M., the future principal. This gentleman has for several years been engaged in the formation and development of this work. Amongst the members of the committee are to be found the names of the Archbishop of Canterbury, the Marquis of Westminster, Lords Denbigh, Harrowby, Feilding, Ashley M.P., H. Cholmondeley, Robert Grosvenor, M.P., the Warden of Wadham College, and the Provost of Worcester College, Oxford, the Archdeacon, and the Rector of Liverpool, &c.; and the Marquis of Blandford, M.P., acting as honorary secretary.

The building, of which we give a perspective view, is intended for the reception of fifty pupils and fifty students (each having a separate study and dormitory), with power of future extension, with the necessary school-rooms, class-rooms, professors' rooms, &c. A refectory, 60 feet by 30 feet; library, 60 feet by 30 feet; museums; an infirmary; vice-principal's residence, with the necessary accommodation for matron and servants. The present group of buildings occupy a site of 250 feet by 200 feet. A chapel, connected with the college by an open cloister, is contemplated. The building is to be fronted with stone,—the moulded and dressed work with a light coloured sandstone, of fine texture, from quarries situated about four or five miles from Birkenhead, and the general face of the walls with a warm coloured sandstone, obtained in the neighbourhood, laid in random courses, and hammer-dressed.\* The style adopted is the Domestic Gothic of the fifteenth and sixteenth centuries. The building is from a design by Messrs. Wyatt and Brandon, and will be carried into execution under the joint superintendence of these gentlemen and Mr. Henry Cole, architect, of Birkenhead.

ST. PAUL'S CHAPEL, ROTHERHITHE.  
MODERN BRICKWORK.

In the last number of your journal you have inserted a communication, headed "Mode of doing brickwork in the Metropolis," and bearing the signature of "A Bricklayer." Permit me to interfere with your province, and say something about bricklaying," in accordance with the request of your correspondent. It is this:—unless bricklayers are closely watched they will only take up sufficient mortar with the trowel to make a cross joint about one inch in depth, on the inside and outside face of a wall respectively, neglecting altogether to flush up the interior. Grouting is an imperfect and partial remedy, as it is, even if done thoroughly, only performing with thin stuff that which ought to be done with mortar of proper consistence, and is not available where a fair face is required. Let Mr.

"Bricklayer" attend to this, and it will be one step in advance for him; and the only excuse I hear is—"We always do it so, Sir; we put a good bed of mortar, and it drops into the joints." Any one who has watched the pulling down of a wall built in the ordinary way, will know that the mortar does not drop so as to flush the joint, and for this cause it is that so frequently external walls require to be coated with cement to exclude the weather which penetrates them.

There is another cause which has an injurious effect upon bricklaying, but, unlike the former the remedy is not within the control of the workman. It is twofold in application—the use of an inferior material to give the appearance of more value, such as cement to represent stone, and the use of a superior material to portions of a building, conveying the idea that the whole substance is similar to that which is in sight, such as facing with bricks of a finer colour and quality than those used in the body of the work, and facing with stone ashlar.

I will make no comment on the adoption of either of these modes, or I should run on with an essay on the advantages and disadvantages of "false appearances;" but it is certain that the stability of brickwork is injuriously affected in each case: where facing bricks are used they too often differ in size from the common bricks, so that it is difficult to make them bond well, and, as a remedy, exertions should be made by the builder to procure all his bricks of the same size, although this may not be always practicable: where the facing is of cement or stone the bricklayer becomes careless, because his work will not be visible, and therefore he loses all "pride of craft." Now that the duty is repeated there will probably be more demand for ornamental brickwork, and I have no doubt this will tend to raise up superior workmen.

As to the dispute in the County Court concerning the work at St. Paul's, Rotherhithe, I know nothing; but this I do know—that the bricks used in St. Paul's are stocks of the best quality, and that the mortar was composed of stone lime and clean sharp sand, the whole worked English bond in a very sound manner. However, as any "bricklayer," who will take the trouble to visit the building (which is situate within a stone's throw of Lavender Dock Steam-pier), may ascertain for himself what the exterior workmanship is, I will only remark, that all I consider requisite for good work will be found in this building,—the materials being of the best description, and the same throughout all the thicknesses of all the walls, the bond being well preserved, with cross joints well flushed up.

THE ARCHITECT OF ST. PAUL'S,  
ROTHERHITHE.

## OVER HOURS.

THOUGH but an uneducated mason, thinking, as I do, that the system of "over hours" is opposed to the onward progress of mankind, and thinking, as I also do, that it would be easy to abolish it, I have taken the liberty to intrude a few lines on the subject. It is well known that it is a custom in most of the building firms throughout England for the workmen, during the summer months, to work one or two hours per day "over time,"—that is, above the ten hours. There are a great many objections to this system, amongst which I will mention the following:—1. That it does not, in the end, yield any pecuniary benefit to the workmen. 2. Neither does it, in a general way, yield pecuniary benefit to the masters. 3. That it almost entirely prevents the possibility of the workmen making any progress in social, moral, and intellectual advancement. 4. That, owing to the great physical exertion required in most of the building trades, it is impossible for any man to work "over hours" without injuring his constitution. 5. That, when the physical strength of the workmen is depressed and prostrated by too long continued toil, they are, more than at any other time, inclined to seek for excitement from intoxicating liquors, and other sensual enjoyments. 6. There is a desire on the part of some of the master builders, and of their most enlightened and best workmen, to abolish the system.

Now, though there may be many men who would be able to give more weighty and more conclusive arguments why this system of "over hours" should be abolished, I cannot think that those which I have given are either unimportant or unworthy the attention of those to whom I have addressed them. It may be said that I have merely stated objections, without giving any proof of the truth of them. I think that only the two first of these objections require to be proved; the others I conceive to be self-evident. I have said that "the system does not in the end produce any pecuniary benefit to the workmen," and I account for it thus:—Suppose that in the erecting of a new church (or any other public building) there are employed, in the whole of the branches, 100 men; if these 100 men work only one hour per day each "over time," they do the work which would employ ten more men,—who, being prevented by this system from obtaining employment, are compelled to apply for parish relief, or to tramp about the country. Now, then, if we take into account all the buildings and public works which go on in this country where "over hours" are made, what a great number of these tens of men shall we have who are receiving parish relief, or who are travelling in a loose and disorderly way about the country, instead of having their share of labour, and the remuneration which would follow that labour. Those employed, too, are of course sooner discharged.

Now, as regards my second objection, "that masters do not receive any pecuniary benefit," I think that it is easy to prove that they do not. The master pays the workman as much for the eleventh hour as he does for any other hour of the day; but it is impossible for any man who works at a laborious trade to do as much work in the eleventh hour as he can in any one of the others. The cause of it is this: he has already worked ten hours,—which is as long as nature designed (if not longer),—he is fatigued and weary, and wishing that it were time to leave work: this being the state of things, it is impossible that he can have as much energy and activity as he has in the preceding part of the day; therefore I think it is quite clear that "over hours" are no benefit to the masters.

And now, what is my intention in writing to you? It is to direct the attention of the builders and their workmen to the injustice and the evil effects of this system, and to call upon them to get rid of it for ever in this country, by simply giving it up.

## AN OPERATIVE MASON.

## ON ENTASIS OR ANT' ENTASIS.

In order for any individual fully to appreciate the importance of the methods for producing elliptical "entasis," or ant' entasis, they should be practically acquainted with the means hitherto used to produce a swell in a column, and their imperfections when applied with the greatest attention to accuracy.

Peter Nicholson enumerates seven methods for finding points in the profile of a column, and then applying a bent lath and drawing the curve.

But this can never produce the curve aimed at, whatever it may be, as both ends of such a line, when drawn against the lath, will be straight.

Mr. Nicholson also gives two methods for drawing a curved entasis by continuous motion,—the one for the arc of a circle, the other for a conchoidal line.

The arc of a circle, a uniform curve, is not "aesthetically" adapted for either a diminishing column, or a still more tapering spire,—most objectionable for the latter.

Mr. Nicholson gives the old method of producing the conchoidal line by a trammel with grooves,—which hinders, indeed trammels, rather than assists in producing a true and beautiful line, which can be by more simple rulers be drawn with facility and greatest accuracy.

But this latter method becomes unmanageable on a large scale. However, by another and as simple a principle, every portion of a conchoidal line, for an entasis of any height, can be described by continuous motion most accurately.

In those enumerated by Mr. Nicholson,

\* The building will be fire-proof; Messrs. Fox and Barrett's patent construction being adopted.



there is one intended for a line of sines, one an elliptical line, two parabolic lines, two arcs of circles, and three conchoidal lines.

Then, Mr. Penrose's researches in Greece led him to propose the "hyperbola," which has many beautiful properties Mr. Penrose can well describe; yet, although it may be the nearest possible approximation to the entasis of the Parthenon, it cannot be drawn with the facility and accuracy that either the conchoidal line or elliptical line is susceptible of; and Mr. Penrose's long and careful investigations enabled him at once to appreciate the elliptical method, when I pointed it out to him; and in actual practice he will be able, I doubt not, to value it still more.

The conchoidal principle of finding points in the curve and drawing against a bent lath, was followed at the British Museum; and it would be interesting to know what it cost to prepare and keep the rules moderately in approximate order, during the progress of the works.

It is, perhaps, not to be wondered at that architects, who have not seen true lines of delicate curvature of distinctly different characters, have not been able to appreciate them as they deserve. If, however, any architect who doubts the æsthetic effect of such delicate variation, would once make the attempt on a good-sized scale, and produce accurately a drawing of a single column with flutes, either with elliptical or conchoidal entasis, the instruction his eyes would thus receive would enable him to distinguish and appreciate the most delicate true curvature, when appropriately applied.

After having produced such an example, if he still doubts, let him substitute a right line, or any other curved line, for one of the lines representing the flutes.

J. JOPLING.

#### GREENWICH BATHS AND WASH-HOUSES.

The style of the design by Mr. Ritchie, selected by the committee, is that of the time of James, and was set forth in a pretty perspective view, which doubtless helped the plan. The arrangement of the plan, which is supposed to admit of one money-taker sufficing for the whole establishment, weighed greatly with the committee,—more, we think, than it will justify in practice. We cannot suppose that this design will be carried out for the sum stipulated, 5,000*l*.

A set marked *Pro Bono Publico*, Italian in style, seemed to us well arranged, and with a satisfactory aspect of completeness. A design marked *Pro Grege a Lege*, presented the peculiarity of circular washhouses, the tubs placed around the enclosing wall, the partitions radiating.

One set of plans marked F. F. were withdrawn by their author before the exhibition; these were evidently the work of one acquainted with the subject.

Mr. W. Smith, of Greenwich, not being a competitor, was called in to assist in the selection, but we do not hear that his recommendation was adopted.

#### REVIVAL OF OBSOLETE PARTS IN NEW CHURCHES.

Your pages lately stated that a new church in the diocese of Gloucester and Bristol was about to be consecrated by the bishop of that see, and that the church contained a piscina, &c., applicable only to the Roman Catholic service. Now in the restoration of our old churches these obsolete parts might well be omitted, but in the construction of a new church it approaches to a superstitious admiration of the ceremonies of another church, and I fear with some it shows a desire for the return of such services. It is not for me (a humble churchman) to point out to our hierarchy their duties, but I do suggest that some respect should be paid to us Protestants by confining the construction of our churches to the requirements only of Protestants. I am further led to make this remark by the comments made by Mr. Pugin on "J. F.'s" communication. "J. F." referred to our parish churches. Mr. Pugin's remarks are more applicable to those for celebrating the Roman Catholic religion, as I conjecture, that had he meant to refer to those for the Protestant, he

would not have expatiated so much on the visible symbols of a religion which, to be practised aright, requires no such adjuncts. I fear that if these very zealous effusions are further indulged in, we shall have the elevation of the rood in our churches advocated, merely because it existed formerly; we have already the screen introduced, although I am unaware of the necessity of dividing the chancel from the body of the church; as minister and congregation should be as one in assembling themselves together, to join in the worship of God.

W. B.

#### THE SELECTED PLANS FOR THE DRAINAGE OF THE METROPOLIS.

I HAVE found you so kindly considerate of desert, that I am induced to request you to use your influence to secure for those competitors who were honourably signalized and mentioned in the recent report of the Commissioners of Sewers some substantial memento of the fact. There were five designs distinguished by special approval. Of these five, two (the 4th and 5th) were the proposals of Messrs. Phillips and Austin, who were officers of the Sewers Commission, and in receipt of salaries at the time of the competition. I think you will consider that Mr. McClean and the other two competitors,—who, it is evident from the terms of the commissioners' remarks, gave considerable attention to the subject,—should receive some pecuniary reward, or a medal, or some other tangible proof by which they may feel themselves paid for the time they devoted to the matter. This would only place them in the same position as Messrs. Phillips and Austin, who were receiving the public money. Any further mark of approval the commissioners may think due both to the first and second class of competitors, of course would be gratefully received, but it is quite clear that something more is due to Mr. McClean and those gentlemen who stood before the officers of the commission.

C. E.

\* \* We supposed it fully understood that the authors of the selected plans would be rewarded: that they should be there can be no question.

#### NOTES IN THE PROVINCES.

To the restoration or rebuilding of Halstead Church, now rapidly rising from its old ruins into a new state of existence, has been added the tower, which it has been found absolutely necessary to pull down and re-erect. The means are being collected, and the work of demolition is in progress.—The restoration of St. Peter's, Northampton, according to the local *Herald*, is now likely to be begun forthwith on the plans proposed, doubling the accommodation: 600*l*. are still wanted for the interior work.—At a meeting of the Leicester Board of Guardians the following tenders were accepted for the new workhouse:—Smith, bricklayer, &c., 10,967*l*.; Lindley and Firs, stonemasons, 1,148*l*.; Richards, ironfounder, 2,940*l*.; Callin, plumber and glazier, 1,635*l*.; Hitchcock, painter, 136*l*. Total, 19,911*l*. Old materials, estimated by Mr. Parsons at 3,500*l*.—The Leicester lodging-houses of the lowest class have recently undergone great improvement, under the bye-laws of the local board of health, and fever, in consequence, has been banished for several months.—The erection of a new church at Swindon is to be immediately commenced.—The Cardiff council have resolved, says *Felix Farley*, to complete the front of the new town-hall, on the original plan of Mr. H. Jones, architect.—A monument of Carrara marble, laid on a Galway black marble basis, has been put up in Heaton Chapel, to the memory of a Mr. Travis, schoolmaster at Heaton Norris for more than forty years. It is in the Pointed style, and was wrought by Mr. Latham, of Stockport.—In less than a month the Sunderland new docks will be ready for occupation. A sailor's home and Bethel chapel are to be erected close by.—It is proposed to erect a suitable building at Haltwhistle, for the Mechanic's Institution there.—The contract for Sir John Barrow's monument on the Hill of Hoad, Ulverstone, has been let to Messrs. Brocklebanks, who have commenced the work.—John Knox's house at Edin-

burgh having been thoroughly repaired, all legal proceedings for its removal have been stayed.—At the Liver Theatre, in Liverpool, which is to be opened in May as a ladies' drapery, &c., establishment! the front is to have plate-glass in the windows of the three stories, each square in the ground story being 13 feet by 5 feet, in one piece. The architect in charge of the alterations is Mr. Gribbon, formerly of Mr. Donaldson's office.

#### THE "PROVIDENT INSTITUTION OF BUILDERS' FOREMEN."

ANNIVERSARY MEETING.

The foremen who are members and supporters of this benevolent society for giving "relief to aged and infirm members and their widows and orphans," met in the large room of the London Tavern, on Wednesday evening, in convivial union with their employers and patrons,—amongst a goodly number of whom, around the Chairman, Mr. William Cubitt, M.P., and the Vice-Chairman, Mr. Lee, were Professor Cockerell, Mr. George Rennie, Mr. Kendall, Mr. Donthorne, Mr. Samuel Pocock, Mr. Barnett, Mr. Haward, Mr. Piper, Mr. T. Piper, Mr. Glenn, Mr. Trego, Mr. Davison, Mr. Clark, Mr. Nicholson, Mr. Greaves, Mr. Nye, Mr. Cooper, &c., &c. In all, probably upwards of 150 gentlemen sat down to a substantial dinner and its accompaniments; after doing justice to which, and expending a little of the rich fund of loyalty and constitutional principle with which one and all appeared to be endued, the chairman gave the toast of the evening, "a bumper," as the toast-master of course insisted on its being, and reviewed the progress of the institution from its tender infancy, when its friends in need were friends indeed, to the present time, when it appeared to be so well supported, that he had to congratulate the members on their prospects. There were probably upwards of 1,000 builders' foremen in the metropolis, and the first object of this institution was to bring these into communication for their mutual benefit. This they desired to do, however, with careful inquiry into the character and capabilities of the candidates, so that the admitted members might do credit to the institution, which, on the other hand, was to be ever alert solicitous to aid him in his employment, in his personal infirmities, in his old age, and in the persons of his widow and his orphans after his death. Some of the class to which this institution belonged, being in good employment, and provident, would provide themselves for these contingencies, and not require assistance from such an institution, but all were not so highly favoured, and builders' foremen, like other men, were liable, and even more likely in some respects than many, to become disabled, as well as like other men to become old: to lend a helping hand to such as these, who required its aid, was the laudable object of this benevolent society, to support and countenance which they had all there met.

The Secretary, Mr. W. Allard, then read the annual report, with an appeal to architects and builders for counsel and assistance. From this report it appeared that the society had already begun its good offices in administering succour to afflicted members, but the balance sheet showed investments of several sums, amounting in all to upwards of 300*l*.—Meantime subscription lists were rapidly filling up along the lines of table, including not a few single contributions of ten, fifteen, and twenty guineas, besides numerous donations of five and downwards; and in a short time, while the lists were still imperfect, the Chairman announced an addition to the funds of 218*l*. odds.

At the close of the report the Chairman, in an able and appropriate address, did honour in the name of the builders and foremen to the architectural and engineering professions in general, and to Professor Cockerell and Mr. George Rennie, as distinguished members respectively of these professions. To these two professions, he said, builders and builders' foremen were constantly looking up with respect and pleasure, and for instruction and support, and they felt proud to see at that table such representatives of these professions as were then present. He drew the distinction between the works of the architect and engineer, that those of the former were the production of art, with the aid of science; those of the latter were the work of science embellished by art.

Mr. Cockerell responded. His friend and he, as well as the other members of their professions present, had great pleasure in associating thus with the



## Books.

*The Annual of Scientific Discovery; or, Year-Book of Facts in Science and Art. With Lists of Publications, Patents, Papers in Scientific Journals, &c.* Edited by D. A. WELLS, of the Lawrence Scientific School, Cambridge, and G. BLISS, Jun. Boston. Gould, Kendall, and Lincoln, Washington-street. 1850.

MR. TIMBS will doubtless be pleased to find his "Year-Book of Facts" now the parent or prototype of a worthy and valuable transatlantic perennial which has just sprung up at Boston, U. S. Though honourably admitted to be based on it as its exemplar, this is by no means a copy, and indeed, though also a compilation of the new facts of the year, there is much difference in detail, with a few peculiarities on the part of the American work, such as the admission of some original matter, or details not previously printed, and the re-arrangement or narration of others in the words of the editors themselves. But were we asked to decide which of these concurrent year-books is the best, we could only reply, perhaps, with strict propriety and conscientiousness, that *both are best*. There is more foreign matter in the Boston book, more British in its prototype: both, be it noted, quote *THE BUILDER*, though, as might be expected, in the latter only amongst the multiplicity of other "foreign" works, and therefore to but a small extent. The work under notice is typographically and otherwise well got up, and quite in the English style.

*Chambers's Papers for the People.* Vol. I. Edinburgh. W. and R. Chambers. 1850.

*THE* *Chamberses* are a singular compound of enterprise and prudence: they seldom or never fail in a sagacious calculation of the wants of "the people," and a prompt and successful administration to these wants. We only hope that, in the present instance, they have not over-estimated the maturity and richness of the mental soil in which they now are busy sowing these fruitful seeds of suggestion and improvement. "The People," however, is a most comprehensive title, albeit a somewhat heterogeneous one; and doubtless it comprises thousands—tens of thousands—by whom such *pabulum* will be appreciated. Having an eye to the junior class of our own more select readers, we may direct their attention to an interesting collaboration of the main features of the contributions of antiquaries, archaeologists, and tourists, on "The Sepulchres of Etruria." This little volume is very showily got up in polished ornamental bordered boards, so that "The People" would require to have clean fingers for its perusal: all—even this—however, will tend, not a doubt of it, to transmute "the great unwashed" into "the great washed," a consummation itself devoutly to be wished, for cleanliness is next to godliness in human nature.

*Electric Telegraph Manipulation.* By C. V. WALKER, Superintendent of the South-Eastern Railway Telegraphs. Illustrated. London: Knight and Sons, Foster-lane.

So far as we are competent to judge, this little pamphlet appears to embody all that is necessary to enable any tyro to handle the electric ganglia and nerve-conductors of the country, and certainly much that is interesting to all, whether with such an object or not.

**DESTRUCTION AT ST. BARTHOLOMEW'S, SMITHFIELD.**—Permit me to direct the immediate attention of all lovers of mediæval art to the remains of a cloister appertaining to the Church of St. Bartholomew the Great, West Smithfield, built by Rahere, the last few vestiges of which are gradually disappearing. The very ornamental and elaborate stone bosses have been sold, and encaustic tiles given away, and the remainder of the former are being transformed into stone bases for the modern barbarian. I question the right of the party thus dealing with the sacred relics of this priory; and I think it is to be deeply deplored that links like these—and there are not too many—should be scattered abroad, and before even drawings are made of them.

W. P. GRIFFITH.

## Miscellaneous.

**INSTITUTION OF CIVIL ENGINEERS.**—On Tuesday, April 2, the discussion upon Mr. Thorneycroft's paper "On the Manufacture of Malleable Iron, and the Strength of Railway Axles," was renewed. The paper read was a "Description of a Lift Bridge, erected over the Grand Surrey Canal, on the line of the Thames Junction Branch of the London, Brighton, and South Coast Railway," by Mr. R. J. Hood. This consisted simply of a rectangular platform, 23½ feet in width, and 35 feet in length, carrying on one side a line of rails, and on the other side a roadway for carts; it was formed of four beams of oak timber, undertrussed with wrought-iron rods and cast-iron saddles, those for carrying the rails (which were bridge-shaped) being stronger than the others, and having a flooring of three-inch planking: the platform rested, when down, upon piles driven into a bed of hard gravel, met with at a depth of about twenty feet below the water line. The platform, which was about 12½ tons in weight, was suspended at the four corners, by galvanized wire ropes, 4 inches in circumference, attached to the end of each oak transome, by means of strong bow springs, and passing over pulleys, fixed on four pairs of cast-iron standards, also supported on piles, and fastened at the other end to drums, 3 feet in diameter, each pair of which were keyed on to the same horizontal shaft, situated a few inches under the rail and road level. Upon the same shafts there were also fixed six other drums, of a like diameter with the former, carrying, upon coils of wire rope, 2½ inches in circumference, balance weights, of a total weight of 12½ tons, but not equally distributed, intended to assist in raising the platform, and which descended in cast-iron cylinders, or wells. Motion was given to one end of each shaft, by means of simple hand-gearing, consisting of a train of wheels and pinions, by which the power was multiplied twenty-six times.

**THE IRON TRADE, &c.**—At the preliminary quarter meeting of the South Staffordshire trade, held on Thursday in last week, it has been resolved, notwithstanding some misgiving and much despondency, not to further reduce the nominal rates, as some had resigned themselves to do. The trade was quite inactive, and without the slightest prospect of a rise; but it is the opinion of parties interested in the sustenance of prices, that the resolution come to "will be faithfully adhered to during the ensuing meetings, since, though it would be rather difficult to reduce these prices to definite figures, they have already been modified to meet the peculiar circumstances of individual firms."—The steel trade and Sheffield trades generally are said to be progressing towards a condition of fair employment and wages, as well as fair return of profits. There is now, beyond those employed at this time last year, an increase of hands at work in Sheffield of

595	in the file trade, in all its branches,
98	" saw trade,
182	" table-knife trade,
77	" edge-tool trade,
93	" spring knife trade,
510	" various other trades.

1,555

—At the meeting of the Iron, Hardware, and Metal Trades' Pension Society, held on Wednesday in last week, it appeared in the report that the balance in hand in 1848 was 377. 11s. 9d., and that the receipts were, during the year, 1,255l. 9s. 10d.; expenditure, 1,122l. 7s. 2d. Viscount Lewisham, M.P., has consented to take the chair at the annual meeting to be held in course of the present month.

**STONE-PAPER, OR FIRE-PROOF THATCH.**—Messrs. Ebart, paper-manufacturers at Neustadt, Elberswold, are said to have recently invented an incombustible cartridge-paper for roofing, which is neither fragile nor expensive. The Royal Commission on Buildings have tested its properties, it seems, and reported it as both impermeable and fire-proof.

**CTRY IMPROVEMENTS.**—The site of the Cross Keys Hotel, in Gracechurch-street—pointed to by a correspondent not long since as offering opportunity for improvement—is advertised for sale, we observe, on the 11th instant.

builders and their foremen. By such association prejudices were removed, an excellent and mutual understanding insured, and all connected with the building trades might be led to become indeed one people—one community. Such was the laudable and noble spirit of our times in general, and to the honour of Prince Albert be it said, that this spirit of true union and sympathy had been so warmly taken up by him. Let them lay aside class interests and become one family of labourers, living by the sweat of their brows, as they all did: and the bread of industry was as sweet at the workshop bench as on the prince's table. He was certain nothing was nearer to the hearts of those around him than to see an institution like this in a flourishing state. The professor then paid a merited compliment to the chairman, Mr. W. Cubitt, pointing to him as an example of that elevation of position and respect in high places, attainable in this country by honourable industry and integrity.

Mr. Rennie also addressed the meeting in a like spirit with Mr. Cockerell. He would fain hope to see an end to all isolation, and the establishment of an intimate amalgamation and union of masters, foremen, and operatives.

The meeting was afterwards addressed by Mr. Thomas Piper, who responded, in an excellent speech, on the part of "the builders," to a toast proposed by Mr. Cockerell. We are most anxious, said he, to give you (the foremen), as far as possible, the benefit, not only of our counsel and advice, but of our purses too. We sympathize with you in all your efforts to provide for yourselves. But our co-operation depends on the manner in which you yourselves enter on a provident course. Come forward, do something for yourselves, and we will also do all we can for you. I have often said behind your backs what I now state to your faces. No class in this metropolis is entitled to more respect than builders' foremen. The great object of our meeting to night is an amalgamation of classes. We are all elements of a common system. I trust the kindly feelings now being elicited, will continue, and that we shall have opportunity to state, face to face, what we feel from day to day, and hour to hour. Let me remind you once more that we are ready to help, but that the matter rests in your own hand, and depends upon your own union:—Yes, this is a union that is a right one—a union of citizen with citizen, of Christian with Christian, of Briton with Briton.

The Chairman, in replying to his own "health," said, the builder's foreman held an important position between the builder and the workmen on the one hand, and the architect and the employer of all on the other. Great tact and discretion were required in the exercise of his duties to enable him to draw the line of justice and duty to all. As for the contractor, he intrusts his foreman with his honour; for if his work be bad the master loses his position in society and in trade. The foreman who possesses a thorough good understanding of his business is a man of no ordinary character, and entitled to no ordinary approbation. The chairman then gave as a toast, the honorary stewards and honorary members, coupled with the name of

Mr. Taylor, who, in responding, said he had predicted, after the meeting of last year, the success which would follow. All now seemed to unite in the desire to promote so good a cause. The vice-president of the present meeting, Mr. Henry Lee, he had some reason to believe, would be their next chairman, supported, perhaps, by Mr. Piper.

Mr. Lee's health was then proposed, by the chairman, and responded to by Mr. Lee, who in turn agreed to preside, and proposed "The Governors and Officers of the Institution," to which Mr. Joseph Kay, foreman, sensibly responded.

The chairman then proposed with eulogy, "Success to *THE BUILDER*," coupled with the name of Mr. Godwin, to whom, he was good enough to say, he thought the institution owed something.

Mr. Godwin, in replying, made some observations in disproof of erroneous notions touching capital and machinery; and the meeting soon afterwards broke up.\*

**THE LATE DR. POTTS.**—The inventor of the hydraulic pile driving process, and other mechanical inventions, expired at his house in Buckingham-street, Strand, on 23rd ult. Dr. Potts belonged originally to the medical profession, but, by inclination, even from school-boy days, and while a class-fellow with the present Premier and the Duke of Bedford, he appears to have devoted himself to mechanical and engineering pursuits. His name, however, will be most closely associated for the future with the ingenious process for driving piles, to the progress of which we have occasionally referred, especially in a leading article in a late volume of *THE BUILDER*.

\* We will not omit to record the liberality of the proprietors of the London Tavern, Messrs. Bathe and Co., who, at the close of the meeting, presented a donation of ten guineas to the funds of the institution.



**PROJECTED WORKS.**—Advertisements have been issued for tenders, by 1st May, for the erection of a church at Gravesend; by 11th April, for the enlargement of a portion of the Central London District School, Westow-hill, Norwood; by 16th, for sundry repairs and alterations to four or five cottages at Claygate, Esher; by 16th, for painting, cleaning, and repairing houses at Hackney for the Islington Cattle Market Company; by 17th, for iron roofing for the London station of the Great Northern Railway; by 16th, for putting down about 3,900 feet of new pavement, and about 900 feet of kerb, at Romsey; by a date not specified, for the building of a bridge over the river Waver, near Wigton; by 8th, for the erection of a new school-room at Wellingborough; and by 10th, for making a new road from Blisworth station to join the road from Blisworth Arm to Gayton.

**BRIDLINGTON CHURCH WINDOW.**—The west window of this edifice, which Mr. Wailes, who should know something of windows, distinguishes as "the largest and finest perpendicular window that has been put up in England for the last 300 years," has been restored from its unsightly mass of rude masonry, and filled with stained glass, on a design supplied and executed by Mr. Wailes. The entire height of the window is 55 feet, and the width 29 feet below the transome, and 31 feet above. The nine large openings under the tracery and above the transome are each 15½ feet high, and of proportionate width, and are filled in with full-length figures as large as life, in niches, surmounted by crocketed canopies. The centre figure is that of the Saviour, holding a globe and cross. The others are the four Evangelists, St. Paul and St. Peter, the Virgin Mary with lilies, and the Lamb. The openings below the transome are each 12½ feet high and 2½ feet wide. The centre contains the figure of St. Thomas with spear. The others are decorated with angels, alternating with flowered quarries, each with a separate lily, in allusion to the dedication of the church to the Virgin Mary. The chief openings in the tracery are filled in with such symbols as the crown of thorns, spear, nails, and sponge, and the secondary and subordinate openings with angel-figures, pelican, I.H.S., &c.

**A NEW OVEN.**—We yesterday saw tested a new oven invented by Mr. M. Fitch, which, for despatch and economy of fuel, will be deemed a godsend by all good housewives. The furnace is a circular fire cylinder of 8½ inches diameter; the fire divides at the lower end right and left into two cylinders of 6 inches diameter, and the heat ascends at each angle of the front of the oven, and enters two deflectors, which it traverses backwards and forwards, so as to secure equal heat all over the oven. Beneath the furnace is another oven for cooking joints. We saw a bushel of bread beautifully baked, and four shoulders of mutton cooked at an expenditure of 8½ lbs. of coals, which is a fraction less than 1d. after the heat is thus got up, the same could be done for 3d., and the oven kept in operation all day for about 3½d. or 4d.—*Chelmsford Chronicle.*

**MONUMENT AT RUNNYMEDE.**—It appears surprising in a country like this that there should be no memorial, not even an inscription, to mark the spot at Runnymede where the Magna Charta of every Englishman's rights received the sign-manual of King John, in the twelfth century, through the firmness of the Barons. The site at present is occupied as a race-course, with an unsightly stand in the centre. Surely this might, and ought to be, removed, and an ornamental and appropriate monument or memorial be executed to commemorate the event, which might be made useful, at the same time, without interfering with the amusement of the race-course. I really think the county and the public should take some interest in such an undertaking.—*W.*

**RAILWAY THROUGH THE ALPS.**—M. Maus, the Sardinian engineer, has published his report on the gigantic operation of boring through the Alps in constructing the railway from Chambery to Turin. The tunnel will be finished in five years, and the expense, including the laying down of a double line of rails, will, according to his estimate, amount to 13,000,000 francs. The French engineers calculated the cost of boring the Saint Irénée mountain at 24,000,000 francs.

**BUILDERS' TENDERS.**—We have before us complaints from builders in five different cases, as to the non-acceptance by committees of the lowest tender for works required to be done, and in one instance of refusing to take any of those sent in, although made by responsible men, and below in amount their own architect's estimate. In all these cases, however, the committees had specially reserved to themselves the right to refuse the lowest tender, and the builders went into the matter with their eyes open. We would, however, impress on parties who obtain tenders the fact, that estimates cost time and money, and that this should be remembered in coming to a decision. If the lowest tender be a fair one, made *bond fide* by a respectable party, it ought in justice to be accepted.

**USE THE MEANS THAT ARE AT HAND.**—Some artists, says a writer in the *Athenaeum*, have failed for want of a good angel, to whisper to them in the midst of their vague and colossal aspirations to do some great thing in Art, that greatness can prove itself such by concession more surely than by defiance. Out of no more genial task than the patching of plays to suit playhouse audiences did Shakespeare secure for himself an eternal reputation. The agonizers, who must needs have worlds, publics, patrons, called up expressly to welcome them—and who, failing such miracle, break their hearts in despair—are, after all, but like a pigmy who has crept into a giant's armour, and who, finding that he can move the limbs of the figure with some semblance of living will and action, fancies himself a giant also.—This is worth thinking over.

**PROTECTION OF INVENTIONS AT THE 1851 EXHIBITION.**—The paper on "Cheapening Patents," in your last number, is a step towards agitating this question,—at least, I hope so. Perhaps you will be humane enough, also, for the sake of the humble workman—I repudiate the term poor—to throw out a hint to the prime movers of the intended exhibition in 1851, as to the absolute necessity of publishing what sort of protection they intend to hold out to inventors who are minus the means to protect themselves with 120l. patents—and whose anxiety is immense—to exhibit their inventions to the discerning world. I know three, who, with your humble servant, all Englishmen! have dared to exercise some ingenuity respecting machinery connected with manufactures, and articles of domestic use. But, Sir, one of the perfections of human reason!—i.e., the patent law—forbids us to be too communicative to each other, and, consequently, with everybody else, having very naturally a terror of the black flag before our eyes,—for of what avail are small craft against the well-equipped pirates who so abound in a trading community. How are inventors and improvers, without a shot in the locker, to steer in 1851? Might not many a good and useful thing (even though it were only suggestive of something better) be still kept in darkness for want of paternal security when realized before the public eye?—*AN INVENTOR OF WAYS, WITHOUT MEANS.*

**THE BIRMINGHAM EXPOSITION OF 1849.**—The *Art-Journal* for April says,—"The final statement of the expenditure and receipts for the fifteen weeks during which this Exposition was open to the public has been supplied to us; and we lay it at once before our readers, inasmuch as it is a curious and instructive paper, particularly when considered in reference to the projected Exposition of 1851:—

Money realized by season tickets, single admissions, and sale of catalogues .....	£3,076 14 0
Cost of building and fitting up .....	£1,258 18 8
Gas consumed and gas fittings .....	231 13 11
Fire insurance on 23,000l. for 6 months .....	128 14 8
Printing, advertising, and catalogues .....	493 18 7
Carriage of goods from distant contributors .....	45 0 0
Attendants .....	482 13 5
Incidental expenses, superintendent's salary, &c. ....	325 11 8
	<hr/>
	2,966 10 11
Balance .....	£110 3 1

**GAS-LIGHT IN DWELLINGS.**—This desirable system, the extensive adoption of which, together with liberal reductions of price and strict purity in the manufacture, we have long advocated, is one certain to promote the interests of companies immensely, while providing a truly lightsome and attractive home to cheer and encourage the people in the path of duty. We are gratified to observe that the importance of it is now being urged at Manchester, where a lecture was lately delivered at the Royal Institution, by Mr. D. Stone, one of whose objects was to urge its adoption. The local *Spectator* also has taken up the subject with a leading article, in an excellent spirit, on "Gas in Dwellings." In the lecture alluded to, the facilities which gas-light affords for the more proper ventilation of dwellings, and hence for the further promotion of a cheerful spirit and health in the homes of the poorer classes, were also pointed out. The chairman of the Manchester Gas Committee itself was in the chair, and, after the lecture, gave expression to an idea that has often struck us, namely, that though only a small per centage of the composition of coal be yet applicable to the manufacture of gas, the remaining elements may yet also be converted to illuminating as well as to other purposes. The hydro-carbon gas was then adverted to, and it was remarked that the limit of attainable quantity in such substances as resin alone would ever prevent their general substitution for coal in the manufacture of gas. The chairman declared, moreover, that he could not credit the statements made as to the enormous quantities of gas which Mr. White professed to be able to extract from resin.—At the Manchester gas-works the quantity of gas made in 1849 was 379,455,600 cubic feet. The smallest day consumption was 306,000 cubic feet, and the largest 3,522,000 cubic feet. The greatest day consumption of canal was 215 tons.

**A NEW LOCK.**—Mr. Edwin Cotterill, of Birmingham, has invented a lock, patented as the detector lock, the security of which is alleged to consist in the peculiar formation of the wards, and a radial spring operated on by a key so cut and adapted as to press unequally on the spring. The nicety observed in the cutting is said to render it impossible even for the maker to reproduce a key precisely to fit the same lock: the security consists in the impossibility of knowing where the pressure takes place, the key being of the most eccentric form, and the lock, in fact, made to fit the key, not the key to fit the lock. The variations are said to be on the scale of the millionth part of an inch. A key apparently precisely like the true one will throw out a spring called the "detector," which not only makes all the parts fast against the false key, but renders it necessary that a peculiar backward movement be made with the true key before the lock can be opened, and hence the title of "detector." Another security is afforded by the formation of the key preventing its being cast.

**ST. MARTIN'S CHURCH, BIRMINGHAM.**—The employment of Mr. Hardwick to furnish plans and estimates, in accordance with his recommendation to restore this church and rebuild the spire, appears to have given offence to resident architects, who regard it as an insult offered to the local talent of a town which has already proved itself capable of contributing to architectural progress.

**NORTH LONDON SCHOOL OF DRAWING.**—A public meeting in aid of this school is to be held, it will be seen, on Tuesday evening next, at the School-room in Southampton-street, Euston-square. We hope it will be well attended.

#### TENDERS

For the Grand Stand at Bedford. Mr. James Horsford, architect; opened 15th March.

Parker (of Thrapston) .....	£1,169
M. Hill and Son (London) .....	1,150
Joy (Bedford) .....	1,027
Cole and Masters .....	999

#### MEETINGS OF SCIENTIFIC BODIES

To be held during the ensuing week.

MONDAY, April 6.—Institute of Architects, 8 p.m.  
 TUESDAY, April 9.—Institution of Civil Engineers, 8 p.m.  
 WEDNESDAY, April 10.—British Archaeological Association, 8½ p.m.  
 THURSDAY, April 11.—Royal Society, 8½ p.m.; Society of Antiquaries, 8 p.m.











# The Builder.

No. CCCLXXV.

SATURDAY, APRIL 13, 1850.

**W**HEN the Emperor Augustus, to revenge the death of Cæsar, had pursued and overcome the regicides Brutus and Cassius, he is supposed to have founded the magnificent temple of which remains yet exist in Rome, and to have dedicated it to Mars Ultor, or the avenger. It was on the first scale of magnitude, the columns being 58 feet high, and exceeding those of any other temple of which remains are found in the eternal city. The material was white marble, and the blocks of enormous size,—some of the frustra of the columns (nearly 6 feet in diameter) being 15 feet in height. The order was Corinthian, characterized by great boldness and simplicity, and the capitals were well adapted for effect at the distance from which their height rendered it necessary to view them.

This was the authority adopted by Mr. Railton for the memorial to Nelson in Trafalgar-square, now nearly completed.

Rendered at the onset unpopular through various circumstances into which we do not propose to enter, the subscription coffer, into which contributions had poured in a generous stream, suddenly closed, and the Government, on whom a large and unexpected responsibility had been thrown, found it necessary to act with extreme caution; so that, under these circumstances, and with a material of a somewhat novel and impracticable nature, it is hardly a matter of surprise that the erection should have been (if not like linked sweetness) "long drawn out."

It has now, however, become a more favourite topic with the press than it was, and the subject having been fully illustrated by the pen and the graver, we confine ourselves to a phase of it hitherto untouched, namely, the structural arrangement, to which we devote two illustrative engravings, one showing a general section from the foundations up to the figure, with the National Gallery in the background, and one showing details on a larger scale.\*

The stratum on which the foundation rests is clay of great depth and compactness, as ascertained by preliminary borings in many parts. An excavation 80 feet square and extending to a depth of about 12 feet below the surface of the pavement was made and covered with a layer of concrete 6 feet thick. In the centre was then built in solid brickwork the frustrum of a pyramid 48 feet square at the base and 13 feet high, the six lowermost and six upper courses being in cement, and the latter level with the top of the podium. At this level the superstructure commences with the graduated stylobate of the pedestal, the first step of which is 33 feet 4 inches wide. From this point to the foot of the statue the work is of solid granite, and for the most part in blocks of very considerable dimensions, disposed with great attention to bond. The arrangement and truth of the work as well as the superficial dressing, may be admired, while in the shaft the blocks are so connected as, with the aid of the joggles in the beds, to

give to the fabric almost the cohesion of a monolith.

Fig. 3 represents the arrangement of one course, in which the converging joints of the voussoirs are intercepted by a large central oblong core, and as this core alternates at right angles an excellent key is obtained, and the square joggles in the beds of the outer blocks serve not only to connect the courses vertically, but to cramp the parts of the same course inseparably together.—See also the sketch fig. 4.

It may be interesting to deduce an ancient parallel to this method of building, which we are enabled to do from the remains of the great temple at Agrigentum, in Sicily, erected some three-and-twenty centuries ago. In the supplementary volume to "Stuart's Athens" (to which, by-the-bye, the architect of the Nelson column was a contributor), we are furnished with the horizontal section of one of the engaged columns and adjacent walling copied in our fifth diagram, showing the lateral bond and the alternately circular and octagonal figure of the core. A vertical bond was formed by making the course not uniformly level throughout, and by a key or dowel occasionally inserted in the beds, but although in the temples of Greece iron cramps were of general application, no trace of such an expedient is found at Agrigentum, nor do any, we are glad to say, exist in the subject of our present article.

The granite employed in Trafalgar-square was brought from Foggin-Tor, on the coast of Devon, and was selected by the architect on account of the fineness and uniformity of its appearance,—the compounds of mica, feldspar, and quartz being in small equable particles, and intimately distributed, so that neither from the attrition of working, nor the action of the atmosphere, was it possible that defacement should occur in the ratio to which some kinds—as those having what workmen call the horse-tooth—are liable; but, in the interior, blocks of coarser grain and such as had a natural discolouration were disposed of.

In the design first submitted by Mr. Railton, as appears from a printed particular, Cragleith stone was to have been employed for the column, and the statue of Nelson was to be in bronze; but the figure is now the only portion executed in Cragleith stone, and consists of three massive blocks, presented by his Grace the Duke of Buccleuch. The largest of these blocks weighed upwards of 30 tons, and in its extraction from the quarry, and shipment into a vessel expressly chartered, required a very great amount of labour and mechanical skill.

When granite was determined upon for the shaft, bronze for the ornamental portions of the capital (Fig. 2) became imperative, but the circumstance was one of much difficulty and expense. Very careful full-size models were prepared by Mr. C. H. Smith; and the preparation of the moulds and the running of the metal were conducted in the Arsenal foundry, at Woolwich, with much ability, by Mr. Clarke.

The foliage is connected to the bell of the cap by three large belts of metal lying in grooves, and rendering it needless to fix plugs into the work, with the concomitant risk of damage from the galvanic action of metals.

The bronze being of old ordnance taken during the war, we are uninformed of the quantity consumed, but it must be very considerable, as a first casting of one of the lower tier of leaves weighed about 900 lbs. The improved method of moulding, however, afterwards adopted, economized the metal very much.

The reliefs for the sides of the pedestal, commemorative of Nelson's four principal engagements, St. Vincent, Copenhagen, Nile, and Trafalgar, are also of bronze, it being, says the architect's description, "less liable than stone to injury from time, accident, or intentional mutilation."

Fig. 1 is a plan of the general arrangement. The four angular cippi of the podium are intended to be charged with the colossal lions indicated in our sectional engraving, but whether in the granite of Devonshire, or the rubiform sort from Peterhead, or, again, in metal, is unsettled. So that the design be completed, and the reproach of ingratitude removed from the nation, we will not agitate the question of mere material; but we do hold it most ignoble that in this prolific age, and in the heart of this magnificent metropolis, our inability to complete a record of heroism and of that long succession of glorious events which contributed so essentially to the honour and welfare of England, should remain thus patent to the world.

The cost of the monument at the present time, we understand, amounts to about 28,000*l.*, including the statue at the summit and the four subjects in bronze for the pedestal.

Subjoined are the dimensions of the principal columns which have been erected as monuments:—

Date.		Order.	Height to the top of capital.	Diameter.
A.D.			Feet.	Feet.
118	Trajan.	Rome. Doric.	115	12
162	Antonine.	Rome. Doric.	123	13
1671	Monument.	London. Doric.	172	15
1806	Napoleon.	Paris. Doric.	115	12
1832	Duke of York.	London. Doric.	109	11
1839	Nelson.	London. Corinthian.	145	6 1/6

## COPYISM IN GOTHIC ARCHITECTURE.

As an architect's primary duty is to design and build rather than to write, permit me to hint that, if the gentlemen who load your pages with their protests against copyism, were to spend even a portion of their spare time in endeavouring to *invent* or discover that new style which is their ideal panacea of architecture, they might be doing a real benefit to art, whether by solving that knotty problem or by proving it insoluble. I would yield to no one in decrying any system to which mere copying is necessary, but I protest against the revival of Pointed architecture being designated copyism. It is quite true that no art can be learned, and, as a consequence, none can be revived, without involving a certain amount of copying during the process of learning or reviving. A boy, when he learns to write, is set to copy strokes, pot-hooks, and letters; but does this show the art of writing to be mere copyism? The artist learns his art first by copying, the student of a language is at first servile in his attempts at composition, and the constructor of a trussed roof or a railway bridge probably copies a little before he feels confidence to strike out on his own account; but does this show that an artist, a person who speaks a foreign tongue, or an engineer, is essentially a mere copyist? It may be that many among our revivalists keep too long in leading strings, and that we want an occasional spur to make us strike boldly forward and develop for ourselves, and to make the revived art more decidedly our own; but this is a very different thing from decrying all we are doing as mere blind servility. If we revive an old style we know *why* we revive it, and that is more than can be said by those who stick up exact copies, taken from the most accurate decimal measurements, of parts of pagan temples and other buildings, with which they have nothing to do. The fact is, that our great misfortune consists in our forefathers having once committed the

\* See pp. 174 and 175.



mistake which "J. F." delineates. We had an architecture which was at once the offspring of our race, our climate, and our religion; but we were enticed from it by an exotic style, unsuited to any of them. This we have, for three centuries, been vainly endeavouring to render our own, and every step has but plunged us deeper in the mire of inconsistency. During this long course of striving after classicism, or, in other words, after the adaptation of the architecture of another race, a different climate, and an adverse religion, it has been the fashion to cry down as barbarous that one style which had been the gradual production of the Teutonic race, as influenced by the climate of northern Europe and the Christian religion, simply because it differed in its details and its expression from the architecture of ancient Greece and Rome.

Recently, however, a change has come over us, and that not the result of any decided movement, nor of any "teaching," whether true or false, but a spontaneous and unconscious change. We have at once become restlessly dissatisfied with our "classic" wanderings, and have opened our eyes to the beauties and surpassing claims of the style which was relinquished for them. This feeling is too deep, too intense to be checked: it must continue and prevail; so that the object is to guide, not to stem it. Every well-directed effort to do the one will be rewarded and gratefully responded to; every attempt to do the other will end in failure and contempt. Our position is this:—Unlike any other people at any other period, we have no style which is at once our own and perfectly wrought up to the requirements of our day, and this simply arising from our having once left the right track. The experience of every age and people tells us that no style of architecture has ever been deliberately invented; all which have existed have been the spontaneous and gradual growth of circumstances. What then are we to do? Our attempts at Anglicizing Roman, or Greek, or Italian, have been but sickly failures, and, to say the least, are as much open to the charges of copyism and inconsistency as any other course. Are we to go eastward and import the styles of Egypt or of Hindoostan; or westward, for those of Central America or Peru? We cannot bring a whole nation to join in inventing a new style; and if they did it would take centuries to perfect it. All we want is to give a correct and reasonable key-note, by which we can all guide our endeavours, and keep them all simultaneously working in the same direction. What, then, can be more reasonable than to begin our reformation by falling back upon the best period of our native and Christian art, and making that the nucleus around which our future style is to be moulded?

True it may be that it originated among "rude men," and "under very unfavourable circumstances;" but is not this the most amazing proof of its intrinsic merits? If a fine style of art had originated among men in the highest state of mental culture, and possessing every possible advantage, we might admire, but we could not wonder at it; but when the architectural works of such an age are rendered utterly contemptible and nauseous by comparison with those which are the invention of "rude men under very unfavourable circumstances," our admiration is converted into astonishment, and we can hardly account for it by attributing the merits of the works of the ruder period to anything much short of inspiration.

It is solely on account of this intrinsic merit, and this comparative suitability to our wants, that we select Pointed architecture as the nucleus upon which we propose to construct the architecture of the future. Experience shows that we must have some common ground-work to go upon, and we hold that among all styles none can have such claims as that which was the spontaneous growth of our own soil, while it is at once suited to our climate and materials, our national associations and our religion.

To revive this style *entire and without addition* would, however, be the height of absurdity. It makes no such unreasonable claims upon us, nor do we make such claims for it. We only claim that it shall be our groundwork—our rallying point—by which our strivings after an architecture of our own

may be kept together. We should each strive earnestly and boldly to adapt it to every new condition and requirement, and to every new material and invention which bears in any degree upon the architecture of our day. That is the first point; let details follow of themselves. There is no reason to alter them without an object, nor should we too severely copy them. The mediæval architects did not *copy* the one from the other, though, working on the same principles, they, naturally, often arrived at the same results. We should work in the same way. In designing a number of Gothic windows it is impossible to avoid using many which have been used before, nor is it objectionable to do so. The simplest combinations must naturally often recur. Ideas will often be given by old examples which we happen to see, and it would be silly to reject them; but on the other hand, I would not *copy* them, but try to catch the spirit of the idea and reproduce it *liberally*, with any variation of which it is capable,—making it, in fact, our own. As I said before, there is a period of comparative servility in learning any art. We are, as regards the revival of Pointed architecture, still in that stage; but our opponents must give us time: spur us on as much as they please, but do not ridicule nor discourage us.

One word on churches, and I have done. I agree with those who say that the adoption in our revival of any feature exclusively belonging to an obsolete or rejected rite is foolish and objectionable; but the theory that Pointed architecture is essentially Roman Catholic I must protest against. If so, why was it never adopted at Rome? and how was it that it owed its extinction directly to Rome and to Papal influence? No: it is the Christian architecture of the Teutonic race. Romanism was an accident to which it had to adapt itself, as it will now have to adapt itself to our Reformed ritual; but it has nothing to do with its rise, or its essential character. The style, again, which we advocate is not one to which we are unaccustomed, or to which we have to tutor ourselves before we can fancy it. It is the architecture of, perhaps, ninety-nine hundredths of our parish churches, and no one whose happiness and privilege it has been faithfully to restore an ancient church, can have failed to be convinced of their perfect adaptation, or, at least, of their ready adaptability to every requirement of our own church.

If "J. F." would spend but a few months in humble and patient examination and study of our ancient churches, from the noble thought which planned the whole to their minutest detail, he would arrive at a very different set of opinions from those which he now holds, and his exertions might then be more successfully directed to reviving and re-adopting than they now are to pouring contempt on those who are labouring to do so: at least, he would not sully his pen by comparing even the rudest specimens of Christian art to the carvings of *New Zealanders*.

In what I have said as to churches, I, of course, speak only for the Church of England. We want no other architecture than that which we claim as our own. Let other communities judge for themselves.

GEORGE GILBERT SCOTT.

**NEW CHURCH AT DEVONPORT.**—The chief stone of St. Mary's Church, Morice-town, Devonport, was laid on Tuesday in last week. The building is to consist of a nave 72 feet long, 21 wide, and 36 high to ridge of roof; chancel, 32 feet long, 21 wide, and 36 high; north aisles, 74 feet long, 17 wide, and 33 high; south aisle, 48 feet long, 17 wide, and 33 high; north and south chancel aisles, for school children, each 22 feet long, 17 wide, and 33 high. There will be a tower at the west end 22 feet square at base, with spire rising to a height of 122 feet. The walls will be built of limestone and lined with brick, the dressings and moulded work being of Bath stone. The flooring will be of Stafford-ware tiles, black and red, and the roofing of Memel timber, stained and varnished within. The sittings will be open, and for about 800 persons. The style is Middle Pointed. Mr. J. P. St. Aubin is the architect, and Messrs. W. and T. May are the builders.

# ROYAL INSTITUTE OF BRITISH ARCHITECTS.

At an ordinary meeting on the 8th inst., Mr. Bellamy in the chair, Dr. Layard and a number of foreign architects, proposed as honorary members, were "hung up:" their names, however, will come more legitimately before us when they are elected. The donations included a new treatise, entitled "Acoustique et Optique des Salles Publiques," by Theodor Lachèze.

It was announced that the names of Messrs. B. H. Galland, A. J. Hiscocks, and R. C. Saunders, had been removed from the list of associates.

Mr. Edward Falkener, with reference to a recent conversation on the connection between Greek and Egyptian art, submitted a drawing of a capital at Karnak, Thebes, which closely resembled the Grecian Doric capital, having a square abacus, with large ovolo beneath, and four filets. The column had twenty-eight flutes; the diameter of the column was 3 feet 4½ inches, and the abacus, 4 feet 9 inches square.

The Chairman said, it was certainly a stronger evidence than the column sketched by Mr. Barry, and given in a foot note in Gwilt's edition of Chambers.—Mr. Donaldson said, he must still adhere to the "hut theory;" he could not attach any importance to one or two casual exceptions from ordinary Egyptian work which appeared to have a resemblance to Greek.—Mr. Tite thought the example shown could not for a moment be considered as having formed a type.

Mr. S. Smirke described briefly an arrangement which has been adopted to ventilate the rooms of the Institute, long needed. It consists of a fan worked by a weight, outside an opening in one of the windows, and which, irrespective of the state of the external atmosphere, is calculated to pump out all the air in the apartment in the space of a few minutes.

Mr. Britton then brought before the meeting a very interesting series of drawings of church towers and spires in different parts of England, made by Mr. C. Wickes, architect, of Leicester, introducing the subject with some earnest and excellent observations, on the rise and progress of the Institute, the position of architects, and the task they have before them.

Mr. Godwin followed with some remarks on the fertility of invention shown by the English mediæval architects in the towers and spires of parish churches, and which were themselves alone a sufficient disproof of the assertion recently hazarded in contempt of these structures. He referred to the miserable state of many fine towers.—St. Mary's, Taunton, one of the most beautiful of its class, was an instance,—and mentioned some examples recently before him (Dundry church tower, near Bristol,\* and others), of the mischief done by the use of iron ties.

Mr. Tite, having first warmly welcomed Mr. Britton once more amongst them, expressed a hope that the views, if published, would be executed in outline. He referred to a very fine spire at Lillebonne, Normandy, and that at Harfleur, both the work of Englishmen. The most interesting tower in Paris, the *Tour de la Boucherie*, was going fast to decay.

Mr. Fowler suggested as an interesting subject for inquiry.—The causes which had led to the local peculiarities observable in church towers,—as in those of Devonshire and Somerset for example. As to the tower of St. Mary's, Taunton, he fully joined in the admiration and regret that had been expressed, and was satisfied that in that instance also the iron ties which had been introduced many years ago had proved very prejudicial.

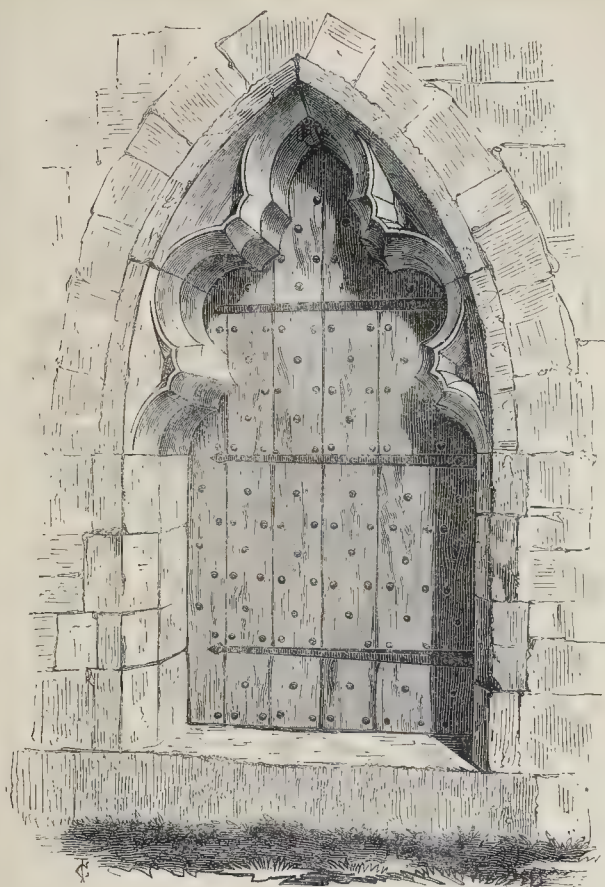
A paper was then read by Mr. G. R. Burnell.—On the peculiar and distinctive character of the Gypsum (sulphate of lime) found near Paris, and its preparation and application as plaster in French buildings,—to which we shall return.

**DOWNING-STREET.**—Can you inform me what is to be done with the vacant piece of ground in Downing-street? Would not this be a good site for the Royal Academy to erect a building on, should they have to leave Trafalgar-square.—A BRICK.

\* We shall speak of this next week.



NORTH DOOR, NORTON CHURCH, GLOUCESTERSHIRE.



DOORWAY AT NORTON CHURCH, GLOUCESTERSHIRE.

Upon the road to Tewkesbury from Gloucester, Norton Church will be found far above the pathway: having ascended, the visitor will be amply repaid for his steep walk by the interesting north doorway here represented, and also by the eastern window, which is of "Early Second Pointed" character (or Decorated), of two lights, with shafts and double splay. The church consists of chancel, nave with south porch, and a capital western tower, having good angular buttresses and projecting staircase turret. The doorway represented is not now in use, having been blocked up from within, and the pathway which led to it is no more. The jambs and cusping are splayed.

THE SKINNERS' HALL, DOWGATE-HILL.

We found ourselves the other day dining with the Worshipful Company of Skinners, Mr. Richard Knight, now Master, and Messrs. Dermer, Nixon, Paull, and Hoggart, Wardens. Right royally do they do these things in the City, with form of state, glittering service, "loving cup," and profuse hospitality. Turning in from the narrow, dingy street behind St. Paul's, known as Dowgate-hill, few would expect to find a building of such pretensions as the Skinners' Hall. This Company was incorporated as early as 1327, and stands sixth of the twelve great companies of London. The building was destroyed in the great fire of 1666, and would seem to have been rebuilt immediately afterwards; the drawing-room, a richly fitted apartment, lined

wholly with most odorous cedar, fully carved and enriched, being of that period.

This had been painted over, and being found in a bad state when cleaned, has been restored almost wholly with new cedar, under the direction of the Company's present architect, Mr. George Moore, F.R.S. The mouldings and carved members are gilded, so that it lights up better at night than would otherwise be the case. We suspect the architect has scarcely had his own way in the ceiling, which is left perfectly plain, and evidently does not belong to the room. A greater mistake could scarcely have been made.

Mr. Moore has also rebuilt the dining hall, a noble apartment, where at least 150 persons may dine, with a recess for the sideboard at the dais end, and an Ionic gallery for the "minstrels" at the other. It is Italian in style, is mainly lighted from the roof, and the ceiling is coffered and very fully enriched.

On the walls above the wainscoting are panels to receive frescoes, at present void. It is to be hoped that they will not long remain so. It would be a good example to other of the City companies. They owe much to their predecessors, and ought, in turn, to do something for posterity.

The company have a large school at Tonbridge, and by and by, when certain leases tumble in, will have the means of educating half London.

Budge-row,\* in Watling-street, hard by, smells of the skinners, and Skinner's Well, Clerkenwell, was so called, says Stowe, "for the skinners of London held there certain plays yearly, played of Holy Scripture."

\* So called of Budge fur.

## ON ARCHITECTURAL PRINCIPLES AND THE TONE OF WRITERS.

LIKE your correspondent, "An Amateur," I also have searched nearly all the works of any celebrity or pretensions relating to this art, from Alberti down to the present day, and with the same object which he professes to have had in view. But with better fortune than he seems to have enjoyed, I have, as I believe, found in them several principles of general applicability to the art, and have no doubt that many others, which escaped my notice, lie scattered through these works. But while thus learning, as I think, many true principles of architecture, I have failed in detecting a single established principle, or even a single rule, or a single fact of any generality, which is not at present disputed. In the sister arts, the writings of Sir Joshua Reynolds and others seem to have placed a few (very few) rules on such a footing as to constitute a little neutral ground (as your correspondent calls it); incomparably less, indeed, than that which the Galileos and Newtons have secured for physical science, but yet just sufficient to enable the professors of these arts (by great care) to write or speak on them and yet avoid collision. It might be supposed that in so eminent and fertile a subject as architecture there would also be at least a thing or two so obvious or so notorious as to be undisputed; but, however incredible it may appear to those who have not studied this art, I confess that a search of many years has not enabled me to discover one such fact. If any of your readers can direct me to one, I shall be greatly obliged. I do not, of course, mean principles applicable to art in general, but peculiarly architectural ones. There are many principles which no one disputes in their abstract shape, and yet, in applying them to architecture, its professors differ so widely as to deduce two incompatible or directly opposite rules of action from the same principle.

In this state of things, then, the plan pursued by popular writers on science is not, as your correspondent supposes, applicable to writing on art. We cannot confine ourselves to the neutral ground, for the simple reason that there is no neutral ground: every spot that we can take for a footing is disputed by some party or other. I am not blind to the advantages of your "Amateur's" method where practicable. If scientific writers would but confine themselves to what is known and established—to that "grand domain of neutral ground upon which no quarrels are permitted, upon which all disputes are settled, and all points of disagreement adjusted," it is plain they could not fail to instruct some readers, and win the assent of all scientific men; and science, relinquishing the vain ambition of perpetually extending her territory, would rest in sedate and dignified ease, content with her already vast acquisitions. But whatever might be the advantages of this plan, they are denied to artists; for, on turning to the theory of fine arts, very little study is required to show us that the present state of this is not identical with the present state of physical science, but rather resembles its state two or three centuries ago, before an inch of the present neutral ground was neutral,—while every spot on which the Galileos and Newtons could set foot was disputed; and if "Amateur" will turn to their writings, he will find that, though not using the elegant language which he attributes to artists (but which I have not met with)—though not taxing each other with "trash," "rubbish," or even (in his own mild terms) with "hollow fallacy" and "insult to common sense,"—they yet found it necessary to disagree; and your correspondent, if living then, would doubtless have found it necessary to protest against the tone of their books, and complain of the sad task, "to him who is impressed with a feeling of love and admiration for the pure, the beautiful, and the true in nature and in art, to wade through" them.

The fact is, Sir, that in such a subject as science then was, or art-theory now is, there is only one way of avoiding disagreement. There is such an art as that of speaking long and yet saying nothing. Writers who would please all must learn this art. By its means they will find it easy to extend volumes on architecture to any length without saying anything, and therefore without differing from any party;



but if this plan do not suit them, there is no alternative but controversy. Unless holding their tongues be agreeing, men cannot agree till they have found something to agree upon: that first step made, controversy will speedily diminish, as it has constantly done in science, since the first spot of neutral ground was won. Like a clearing in the woods, it has grown with a progress constantly accelerated, as the extended circumference afforded room for more pioneers to work without collision, and the extended area more ground for their support, and for the amusement of those of your correspondent's way of thinking (for even *they* clash when they have not standing-room). But neither the old plan of continued extension, nor his new one of contented possession, is applicable where the first clearing has not been commenced. Like all who have undertaken to write on architecture, for many years past, I have done so with the settled conviction that whatever principles may have been *discovered*, not one has yet been *agreed upon*,—that the entire work of establishing them has yet to be commenced. And this is, I suppose, what your correspondent calls being "thrown almost entirely on our own resources, to navigate a ship without compass or rudder." But he is quite mistaken: we have for resources a mass of literature more voluminous, perhaps, than that relating to any other one art or science, and for compass and rudder the simple object of discovering truth. \* \* \*

The "rude huts" of which he speaks, whether rude or not, were *artistic* huts. We have as good evidence of this as we can have, short of ocular testimony, since *every* other object preserved from that age and country is artistic. With thanks for the information that "Grecian ladies had not the comforts or conveniences of one of our cottagers' wives," I was aware of this, but was alluding to a still stranger fact, equally worthy of his attention; viz., that English ladies have not and *can not* obtain objects of such pure taste (i. e., such congruity, such studied design, such condensed and refined thought), as were to be found in the cottages of ancient Greece, Plantagenet England, or perhaps modern Ceylon. Comforts and conveniences are not the only or chief good things of this life, except in the estimation of men verging towards second childhood, or nations verging toward second savaghood.

The next two quotations which he brings together as a specimen of my "hasty and fallacious reasoning," will better serve as a specimen of his love of truth. You will perceive, on referring to them, that, occurring some pages apart, they relate to two widely different objects,—the first to architectural expression, the second to what I have, in compliance with an established custom, though reluctantly on account of its vagueness, termed the poetry of architecture. It is to the former, *expression*, that I assert those who have the misfortune to grow up in modern English cities prove themselves, in general, totally deadened; and whoever is so, may well be said to be deadened to the whole art. Taste is impossible to him, for, if he cannot distinguish one expression from another, how can he tell whether the expression of a given building be right or wrong? But this deprivation of taste need not prevent him from seeing and acknowledging, in the triumphs of the art, something not present in its every-day productions. It is doubtful whether any one is blind to this, at least when accompanied by greatness of scale, as in all the examples given. It is just the same in other arts. A man may discover, without being told so, that Shakespeare and Milton are superior to modern poets, and yet, on seeing two verses in a newspaper, may lack the taste to prefer that one which ought to be preferred. It is the peculiar merit of works of the highest excellence, that false taste, whether arising from neglect or misculture, cannot prevent their superiority from being confessed, though only an infinitesimal part of it may be seen.

I do not give this explanation in defence of opinions (which must be left to stand or fall on their own merits), but to enable such of your readers as have seen only your correspondent's version of them to judge (not whether they are right or wrong but) to whom they are indebted for the "hasty and fallacious reasoning," the "monstrous conclusion," and

the "insult to common sense." I do not pretend to say that the reasoning on my side is not fallacious—time only can decide that—but I do assert that your correspondent is greatly mistaken in supposing it *hasty*, and will find it is not hastily to be disposed of.

To the next fallacy, viz., that no knowledge of an art is needed to distinguish its differences of expression, I plead guilty, and will admit its fallacy as soon as he shows that musical knowledge is required to distinguish a dance from a dirge, or produces any rustic so ignorant as not to perceive which is meant to be merry and which solemn. He is quite right when he says, that "if art be anything, if genius be anything, we may be quite sure that they do not thus display themselves all at once."—who said they did? But expression in art must wholly or partly display itself at once, and that to the most ignorant, or it is not expression at all. He is quite right, too, when he says of works of genius, that "they require the study of an educated and refined mind for their [due] appreciation;" but unless they have also something to affect the totally uneducated, they are no more works of *art* than the *Novum Organum*, or the *Principia*. It is true alike of all works that the more study and culture is brought to their examination (short of that of their author himself), the more fully will they be appreciated; but those which cannot be appreciated at all without such preparation are not art, but science.

My object in addressing you, however, is not to defend opinions, but the far less pleasant task of pointing out injurious misstatements of facts. The question is not whether certain opinions of mine are true, but whether your correspondent has intended to give a true account of them. His last remark relates to something which he assumes I *would* say, viz., that such an appreciation of a picture as cost Sir Joshua Reynolds weeks of study, "ought to be roused at once in the mind of the child and the rustic." You can decide whether anything which I *did* say could possibly be twisted into such a conclusion.

I have the more faith in your impartiality as to these matters of *fact*, because in at least two matters of *opinion* we professedly differ. But even if these points were much more important—if many other points of my creed depended on them (which is not the case)—I do not see why the difference should lead to any such language being used between us as that used by the "Amateur." What if I consider the expression of unselfish design necessary to distinguish architecture from building, and you consider it unnecessary? The hypothesis is only a stop-gap, ready to be removed with pleasure the moment a more efficient one is found. What if you consider the old parish churches to be good Gothic, and I think them mostly bad Gothic? I do not believe either opinion to have been hastily formed, or without long and attentive study; and so far from leading us to use hard names, I believe these differences might increase our good-will to each other, and to all who have these two points in common,—that they have bestowed much study on the same subjects and with the same object—the discovery of truth.

E. L. GARBETT.

#### A WORD TO ARCHITECTS' PUPILS.

WHATEVER may be the opinion of the pupils who have addressed you, I cannot help thinking that they are by no means the subjects for a Jeremiaid.

Having in my own pupillage gone through a course of fencing with T squares, lounging in carte at a mark on the wall, and reading James's novels in office hours; and knowing, from experience, how these and the like practices engender a habit of loitering and dallying, of getting through time, rather than of laying it out to the best advantage, I should be glad if I could be of service to others, in warning them of the danger they incur; and herein, I would more especially address myself to your correspondents.

Did they possess but a tithe of the ardour for instruction they arrogate to themselves, it is certain they would have mastered the differences of the Pointed styles long ago,—that is to say, the broad and distinctive features that characterize those styles. The

blush of shame should have suffused their cheeks, when they confessed how recent was their acquaintance with what has been learnt for amusement by many of the other sex—the mere alphabet of their profession. Do they remember the waggoner in the fable, who, when his waggon stuck in the mud, called upon Hercules and all the gods to come to his assistance; but, no aid appearing, he was compelled to remain where he was, until a countryman, chancing to pass, recommended him to put his own shoulders to the wheel. Let them apply the moral of this fable, with which, in their younger years, they must have been familiar. It is not usual for an architect to do more towards the education of his pupils than allow them the negative benefit of acquiring information from the drawings with which, either in tracing, or in completing, they are concerned.

It is a system of "picking up" what they can. These hints are to be improved upon by the proper employment of the time after they have left the office. And it may be made a fair matter of question whether what is acquired out of office hours be not the more valuable and precious from its being the product of self-education.

But, while they are thus seeking an acquaintance with their own profession, assisted by the elementary works published for their especial benefit, they should not exempt themselves from those severer studies that train the mind to essay the highest efforts. If they do neglect the disciplining and educating of their own minds, which is so essentially requisite before they can make any progress in science, they may be sure they will repent them hereafter of such neglect. What more particularly must be insisted upon is the guarding against the contracting of bad habits. Every one knows how easily habits are formed, but especially such as are bad; and of all bad habits, idleness is the worst. It is as difficult to get rid of, and proves to the full as great an encumbrance as the old man of the sea who rode upon Sinbad's shoulders. "A busy man is troubled with but one devil, but the idle man with a thousand," says the Turkish proverb. It is to be feared these pupils are not speaking so *figuratively*, when they say they "have sat for a long time with their hands before them" and, if the conjecture be correct, here then is the first toil they have to undergo—the first step upon the ladder of usefulness—to unlearn a most pernicious habit. But, if they are in earnest in wishing to be guided, they will, without doubt, instead of passively submitting to the domination of the tyrant, by a continued course of activity, wrestle with and subdue this formidable antagonist to their advancement,—from every struggle gathering fresh strength, like the fabled Anteus in his contest with Hercules, but unlike him, inasmuch as they will come out conquerors.

One stumbling-block in the path of architects' pupils is, that they are apt to imagine themselves destined to strike out a new style. Their language, individually, is, "Who knows but what I may invent a style of architecture utterly unknown before?" This mental hallucination cannot be too rudely dispelled. I am not hardy enough to assert that, because a thing has not been, it may not be; but, from analogy, it may be safely asserted, that no one can hope to invent a new style of architecture without having first learnt what is already extant, with all the mechanical contrivances the collective wisdom of centuries has discovered. Lord Bacon did not publish his "*Novum Organum*" until he had pondered deeply the systems of logic bequeathed by the ancients. That great man occupied himself till his sixtieth year in the studies necessary to produce that work, and copied it no less than twelve times, revising, correcting, and altering it year by year. What a noble example of industry to men in all time! Those whose names stand highest in our own profession will readily admit (for diffidence is ever the attribute of real genius) how vast are the fields of knowledge by them unexplored—how limited is what they know compared to what they might know, and compared to what, by patient laborious application and prolonged life, they may yet attain. And if this be their unanimous verdict, how incumbent is it upon those who are only starting in the race to hold on their



course without flinching! how all-important that the conviction should be pressed home to their minds—that it is upon their own self-exertion and self-improvement their future excellence must depend! A man cannot make a more fatal mistake than in leaning upon others. Let him rather choose the more dignified course of trusting to himself.

The records of history teach us how incompetent are the first masters of the age to convey instruction to minds not sufficiently in accord with theirs to turn the instruction, so sought to be conveyed, to good account. It would be not more vain to sow on the sea-shore and expect to raise a crop of wheat, than to look for good results from the task thus imposed. The seed may be sown, the fertilizing rains and dews may descend, but there must be a spontaneous action of the soil, in combination with these agents, before the plant can spring up into life. As in nature, so in intellectual culture.

Had the master all wisdom and patience—could he unite in his own person all the talents of the most talented architects, without his pupils' co-operation, he could not transfuse a particle of his skill, wisdom, or patience, into their minds. Further, let them hear Locke:—"Nobody is made anything by hearing of rules, or laying them up in his memory: practice must settle the habit of doing."

C. J. N.

## NOTES ON GAS.

SOME new mode of economizing and cheapening the manufacture of gas is ever occurring in the experience of the manufacturers, and to their advantage, at least, if not to that of the public. The superintendent of the Rugby Gas-works is at present engaged in carrying out a series of experiments which seem to be of some importance in this respect. The object in view is the purification of the gas from sulphuretted hydrogen, and this he appears to find may be effected without a continued waste or expenditure of quick lime, or any other material, by merely substituting a mixture of lime and hot solution of green vitriol absorbed by sawdust, in the proportion of about 112 lbs. of the vitriol, or sulphate of iron, to 40 lbs. of the lime, finely sifted. Now it has been found not only that this mixture does purify the gas, but that after it has been used up in so doing, a little exposure to the air reconverts it, changing its colour from black to brown, into a state requiring only a little moisture to enable it to do the same duty over again, even more effectually than before, and we doubt not as often and as long as may be desired. The rationale of the process, in fact, seems just to be this: the sulphuretted hydrogen absorbed from the gas will convert the quick lime into hydro-sulphate of lime, which will interchange acids with the oxysulphate of iron, and thus form sulphuret of iron, water, and sulphate of lime. Exposure to air will, by the addition of oxygen, enable the sulphur to escape as sulphuretted hydrogen, while the iron becomes oxidized; but here comes the only doubtful part of the process:—oxide of iron might enable the mixture to do a second time, by itself absorbing more sulphuretted hydrogen, just as the oxide of lime did in the first instance, but the latter is no longer a serviceable oxide of lime—it is a neutral and fixed sulphate. Of what further use is it then in the mixture at all? We will venture to suggest that it is of no further use, unless it be to separate the particles of iron oxide, as the mere sawdust does, and thus the more fully to expose it to the sulphuretted hydrogen. In short, we would recommend the substitution of mere oxide of iron itself, prepared, it might be, by rotting a precipitated sulphuret into sulphuretted hydrogen and iron oxide. Such an oxide, mixed with the moistened sawdust, would absorb the sulphuretted hydrogen on the purifying sieves, and liberate it again by rotting on exposure to air as before, leaving the newly rotted base or oxide as ready to absorb another dose of sulphuretted hydrogen and form a nascent sulphuret of iron as before, to be as readily rotted again as ever. Thus the only use of the lime was at first to assist in preparing the sulphate of iron into oxide and sulphuret by the withdrawal of its acid, and thereafter it probably remains as a

mere clog to future purification, unless, as said, it aid the sawdust as a separator, which *plaster of Paris* is not very likely to do. At all events we would recommend gas engineers to test this view of the process. "In an era when the cry for cheap gas resounds from one end of the kingdom to the other," says the *Coventry Herald*, in allusion to Mr. Phillips's process, "and when gas companies are exerting themselves to the utmost to meet the wishes of their customers, this discovery may become of great importance, and be received gladly by those interested in the manufacture of coal gas."

It is well known at Northampton that in consequence of the last reduction in price obtained from the gas company there, the company's own rental has greatly increased, yet strange to say, the hint has not been taken, and the company have allowed "the gas movement" to occupy a strong position in Northampton, where a numerous meeting of consumers and others was held on Monday, in week before last, at and since which nearly 300 consumers have pledged themselves to take gas, for seven years, from any new company that will engage to supply it at 5s. a 1,000 cubic feet, with a reduction within the term should circumstances prove such reduction to be practicable." The mayor is at the head of the movement, but at the meeting, he advocated "the advantage to a town from a gas company being in the hands of the borough authorities, and instanced Manchester, where gas was now supplied at 3s. 9d. per 1,000 feet, and the profits, which were large, appropriated in payment of the borough expenses." A deputation had waited without success on the company, "to represent the bad quality of the gas, the deficient supply, the oppressiveness of the monopoly of the fittings, and the exorbitant price charged for gas." The *local Herald*, in supporting the movement, and disclaiming all ill feeling to the existing company, expresses its firm belief that the latter would be as much benefited by the required reduction as their customers. Though resisting the movement till they have thus lent a hand in maturing it, the company have now thought proper to announce a tardy and partial reduction to 6s. 3d. and the adoption of the system of renting meters as a promotive to future consumption in private dwellings.—The Rotherham Gas-light and Coke Company appear to be awakening to the advantage of lowering prices (at least to some extent) without absolute compulsion. Since their last reduction "the company are extending their works, and appear to be in a very prosperous state." They have just been striking a dividend of 10 per cent.—the maximum allowed by the Gas Act—besides carrying an odd trifle of 300l. to their reserve fund, and all out of a total receipt of about 1,600l. only. They are consequently in good humour, and have voluntarily reduced the price of their article 5d. per 1,000 feet.—The price of gas at Rochdale, where, as the local Gas Commissioners state, "the profits from the gas pay all the town improvements, with 200l. over," has been reduced from 6s. to 5s. a thousand feet for small consumers; large pay only 4s. 6d.—The *Carlisle Journal*, in speaking of "the advantages which the citizens are likely to derive from the transfer of the gas works into the hands of the corporation," says, "It will be seen that, after paying a dividend of 9 per cent. on the original paid-up capital, a sum of upwards of 1,200l. has been laid out in extensions of the works, new mains, lamps, apparatus, and buildings, from which additional returns will be obtained hereafter. But little outlay will be required for extensions for many years to come; so that a large surplus—from 600l. to 800l. at least—may be calculated upon to be carried to the borough fund annually for the improvement and general benefit of the town. This is certainly a very gratifying prospect. \* \* \* Since the trustees took possession, although they have had to build and provide an entirely new 'plant' upon a very extensive scale, they have reduced the price of gas to private consumers to 5s. per 1,000 cubic feet; they have greatly increased the number of public lamps; and they have vastly extended the hours of lighting,—at the same time limiting the lighting rate to sixpence in the pound."—The Consumers' Gas Company, Dublin, has declared a dividend equal to 7½ per cent. on the past half-year alone.

## PRESERVATION OF ANCIENT MONUMENTS.

ST. BARTHOLOMEW'S, SMITHFIELD.

SOME time since you did me the favour to insert in your columns a recommendation that, prior to any interesting building being demolished, drawings of the same should be made by a qualified architect, and deposited in the public archives. I perceive, in your last number, that Mr. Griffith complains that remains of St. Bartholomew's Church, Smithfield, are being swept away, and that no record of them will be left: this is barbarous. Had the plan been adopted of preserving drawings of all fine buildings necessarily doomed to destruction, what a mine of art might we not possess, which is now totally lost to us! The magnificent portico which Inigo Jones attached to old St. Paul's, the sight of which induced so many thousand persons to subscribe towards the full repair of that building, has disappeared, without the possibility of our retracing its features. We know that Sir Christopher Wren regretted the necessity of taking down that portico, and remarked upon the difficulty of the task, owing to the solid manner of its construction, it being built after the true Roman fashion. This only sharpens our regret at the loss we have sustained. Again, Sir William Chambers deplored the removal of the façade which Inigo Jones had built to old Somerset House, and with a view to recal to mind this fine structure, determined to make his Strand front to the new building as much like that of Inigo Jones as he possibly could do. We cannot but commend the enthusiasm of Sir William Chambers, whilst we feel how little we are reminded, in his work, of the great disciple of Palladio; but with this little we must rest contented.

I would most respectfully urge that the Royal Academy should take in hand the good work of preserving memorials of all really fine buildings which must in future be sacrificed either to the mania of change or to the principle of improvement. The Royal Academicians are, owing to their position and qualifications, the legitimate guardians of the public taste; and to that body, I believe, the public would cheerfully intrust the important and patriotic duty of preserving and handing down to posterity those architectural embellishments which were once the pride of our land.

A. W. HAKEWILL.

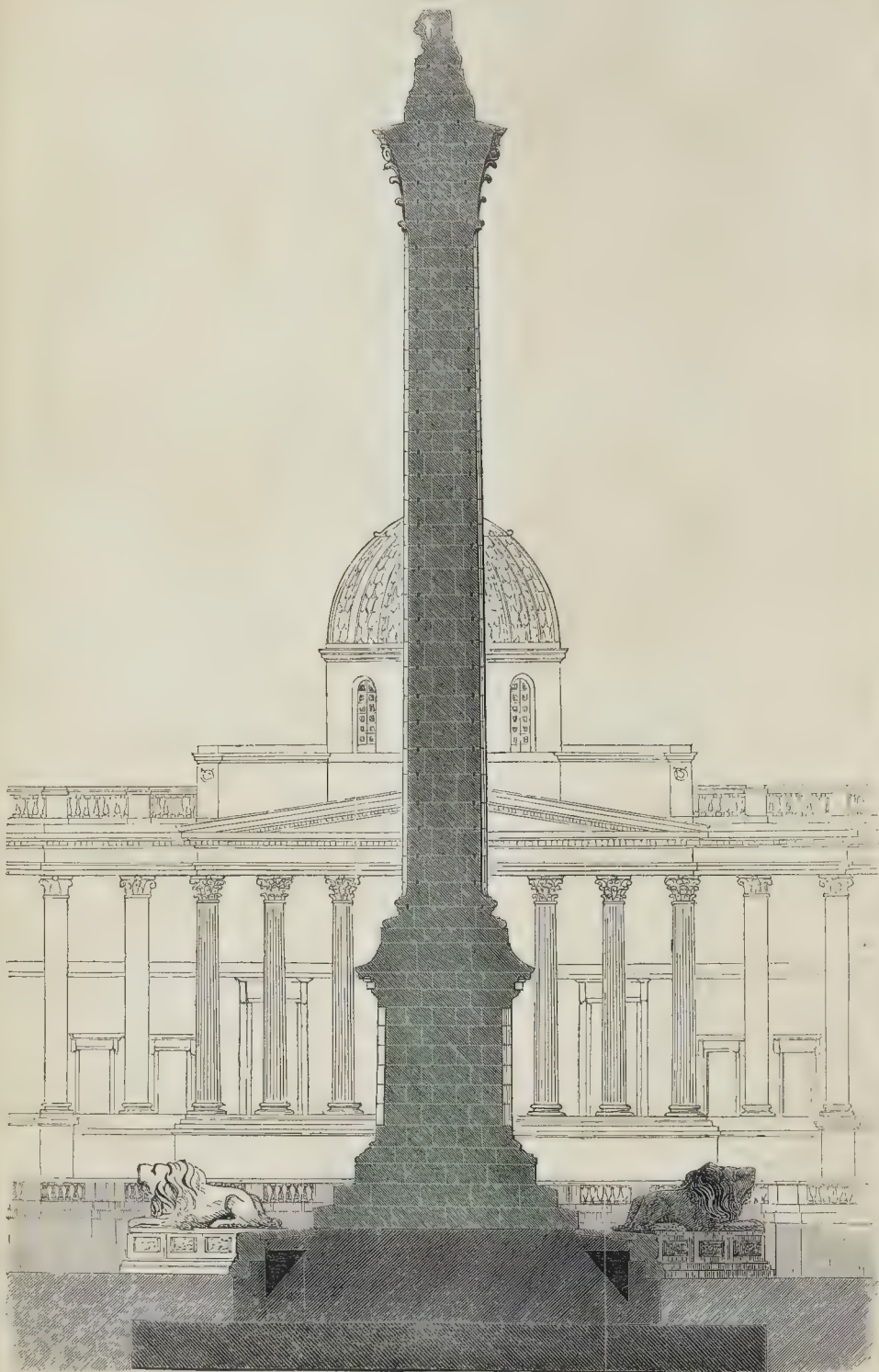
Our readers will scarcely believe us when we say that, "the tomb and the remains of Alfred the Great" were to be offered for sale by auction, on Thursday last, by order of the Winchester county magistrates! The *Hampshire Independent* with just indignation says:—"If future generations do not affix the burning brand of shame on this our own generation, which permitted such a disgraceful act to be perpetrated, retribution will be proved to be a fallacy, and indignation to have discharged its shafts wide of the mark which it ought to reach. This deliberate act of the county authorities—this act of men on whom education seems to have been lavished in vain—this insult to the feelings of every Englishman who has ever cherished or nurtured as a household theme the name, the deeds, the thoughts, and the words of Alfred, as the personification of all that is great and good in a monarch, of all that can dignify, adorn, and elevate humanity—is to be consummated, and the mouldering dust of Britain's greatest legist is to be disposed of on Thursday next."

VOTE ON THE WINDOW-TAX.—Lord Duncan's motion—that it is expedient to abolish the window-tax—came to the vote on Tuesday last in the Commons, when we regret to say that it was lost by a majority of three—80 to 77—a result the more provoking, since there were exactly the number of yes shut out that would have turned the majority to the right side. As it was, however, the probably somewhat unexpected narrowness of the majority was received with loud cheers. And well it might be, considering that the Ministers, with all their influence, could only secure a majority of three against the immediate abolition of this abominable and now certainly doomed tax.



## THE NELSON MONUMENT, TRAFALGAR-SQUARE, LONDON.\*

MR. RAILTON, ARCHTCT.



\* See page 169.



## DETAILS, NELSON MONUMENT.



FIG. 2

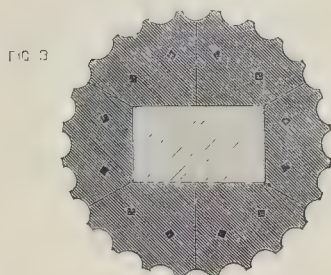


FIG. 3

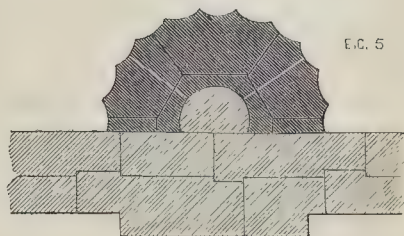


FIG. 5

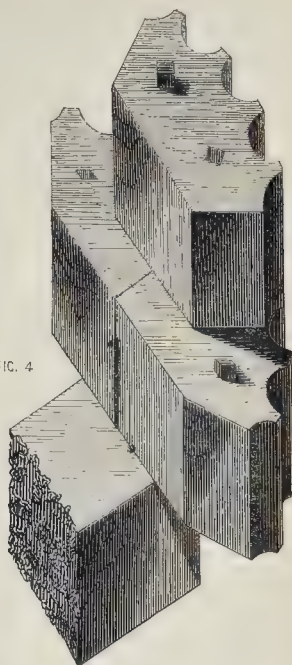


FIG. 4

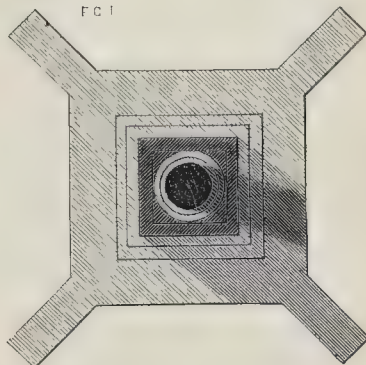


FIG. 1

## SUFFOLK FINE-ART ASSOCIATION.

Ipswich seems to be indeed a spirited town. The first general meeting of a new association has just been held there for the establishment of an annual exhibition of works in painting, sculpture, architecture, and engraving,—the formation, by purchase or gift, of a permanent collection of works of art, to be accessible to the subscribers and the public,—and the occasional delivery of lectures on subjects connected with art. Mr. J. C. Cobbold was in the chair; and a highly respectable meeting was addressed by various gentlemen, amongst whom were the Rev. C. H. Gaye, and Mr. T. S. Gowing, Mr. R. M. Phipson (who, acting as secretary, read the provisional committee's report), Mr. F. C. Brooke, &c.

The Rev. Mr. Gaye, in his address, claimed credit for the church as a great patron of the arts. None of them could forget how, in the great revival of art, it was the Church that developed the talent exhibited in the persons of Michelangelo, Leonardo, and Raphael. He trusted, that, as the Church was the patron of

art in her infancy, and at her revival, so might she continue still to hold that character. It wanted but little intelligence, but little experience, and but little acquaintance with human nature, to see how the fine arts may be made materially conducive to the great object which the Church and her ministers had in hand; part of that object being to humanize mankind. He recognized in the Christian artist a fellow-worker with himself. He believed not only that the artist might advance the cause of religion and good morals by working in what was called, and justly called, the highest line of art—he meant sacred historical painting—but also that by pursuing even the inferior lines of art, the painter might materially contribute to the same end. He held (and he might say it without irreverence) that, in contemplating the works of external nature, in attempting to represent these, and in admiring the artistical representations of them by others, we were, in a manner, holding a certain communion with nature's God. He believed this contemplation tended in a degree to lift up our hearts to God himself.

Mr. Gowing observed, that it was only by the co-operation of all classes, the highest and the lowest together, that we could hope, with any reasonable prospect of success, effectually to succeed in the promotion of this or any other good object. Besides the higher point of view so eloquently dwelt on, there were many considerations of another kind more especially important in a country like England, which depended for its prosperity almost on the superiority which it shall maintain amongst nations by its manufactures, and on the artistical skill by which these manufactures shall continue to be produced. As a further proof how very important it was that the arts should be cultivated, what should we know of the history of many of the ancient people who inhabited the earth with glory for a time, and who sunk down and disappeared—what should we know of them but for the monuments of art which they have left behind? Who knew, for instance, until within a few years ago, of the elements of Assyrian art? Up to a comparatively recent period the Assyrians had almost passed away from recollection. But now, in



what once were considered to be merely heaps of rubbish, what do we find? The records of a nation—such records as teach us what that nation was in former times. It was great. And why? Because of the cultivation of the arts.

#### NOTES IN THE PROVINCES.

In the removal of some wainscoting at Elsworth church chancel, the rector has discovered three sedilia, a water drain, and an altar tomb. The east window of this church requires restoration, with the removal also of the Grecian wainscoting from beneath it.—Mr. Butcher, edge tool grinder at Sheffield, who has had one of those unhappy disputes with his workmen for which Sheffield has become so notorious, had a narrow escape from assassination lately by an attempt made to throw a hand grenade into his bed-room window. Is it likely that the villains capable of dealing in such infernal machinery under any circumstances or pretences, have even a vestige of justice in their own cause of dispute, whatever that may be? The same dastardly and diabolical spirit that would prompt a set of cowardly assassins even to meditate such a crime, must ever present the most insurmountable of obstacles to their own welfare. Whatever be the prospect which Sheffield may have of the advent of a "new trade," it certainly seems to have but small prospect of the "new man" of whom, as we have said, it so much more stands in need.—The foundation stone of a new Methodist chapel was laid at Cradley Forge, Stourbridge, on Easter Monday.—At Devonport, in addition to two new churches in course of construction, two others are about to be built.—The old parish church at Tor has been opened, after having undergone repair and restoration, internally and externally. The seats are now open, with low backs.—The *Liverpool Times* states that on Thursday week an exceedingly numerous meeting of the operative house-joiners of that town and its vicinity was held for the purpose of establishing an institution which shall afford facilities to the members for the transaction of business, for the study of science, and for mutual improvement, apart from the pernicious influence of the public house. Mr. William Thompson was called to the chair.—On Friday week before last the new Independent Chapel at Hall Fold, Spotland (Rochdale), was opened. The building is 60 feet by 48 feet, is built of white stone, and has a gallery; it will seat 800 persons, and has cost 1,600l.—Plans have been procured from Messrs. Lockwood and Mawson, of Bradford, for interior restorations in Doncaster parish church.—A piece of land at Darlington, consisting of eighteen acres, belonging to the poor, is to be converted, by the parish vestry, into a park for the public. Although the poor may still greatly benefit by their property, it would be but fair perhaps that the vestry, in presenting "the respectable inhabitants," amongst whom the idea of such an appropriation originated, with a privilege so great, should give the poor some special compensation for their loss of exclusive possession and use. The *Gateshead Observer*, however, seems to have no doubt but that the liberal donors mean to pay the poor proprietors an annual rent for their property.—Contracts have been entered into for the erection, forthwith, of a Catholic school at South Shields, adjoining St. Bede's Church.—Edinburgh, as we are informed, has contributed about 1,300l. to the monument to the great "Edinburgh Reviewer," the late Lord Jeffrey; London about 400l.; and Glasgow about 100l.—There seems to be some likelihood of the chief stone of the Scottish National Gallery at Edinburgh being laid by Prince Albert in August or September next. The Bill sanctioning the erection is expected to pass through Parliament without delay; and, in the meantime, the operations are going forward with great vigour. The retaining wall on the west side of the Mound, for the new road in course of formation, is already well advanced; and the occupiers of temporary buildings have been warned to quit. The gradient of the present road on the Mound is one in eleven, but that of the new will only be one in fifteen. The plans and elevation, says the *Edinburgh Register*, are, shortly, we believe, to be made public.

—The Martello Tower at Leith has just been completed. It contains two barrack-rooms, store-room, powder-magazine, tanks, and other conveniences.—The contractor for completing the new Ashbourne road, Limerick, has sworn an information against labourers who threatened to take his life if he did not give them employment. The struggle of competition for a livelihood is savage and deadly enough, even without 'physical force.' God forbid that the 'evil example' of a Sheffield and a Limerick should elsewhere further corrupt the 'good manners' due between man and man. The adoption of such examples could only result in the total ruin of trade and industry—master and man—and in the return of one and all to a state of abject and literal barbarism.

—Messrs. Lightfoot and Brothers, of St. Helens, have taken the contract for the earthenware pipes needed for the improvement commissioners' new waterworks at Burnley.

#### IMPROVIDENCE OF OPERATIVES.

A LATE number of your journal contains an article on the best of all reforms, *self-reform*. Much is now being said on the subject, and week by week written in various periodicals devoted to the advocacy of this and kindred questions. There is, nevertheless, an ample field, in which *THE BUILDER* may, as opportunity shall serve, scatter a little more of the good seed. A large class of building operatives are readers of *THE BUILDER*, and have an interest in almost all its subjects; hence, its remarks on the improvidence of some of this class will be more likely to have weight and influence with them than if directed from any other quarter.

It were to be hoped that improvidence amongst this class of artisans were as infrequent and exceptional as *THE BUILDER* conceives it to be. Too many, it is to be feared, though they may not spend their days at the public-house and gin-shop, yet devote their evenings to these places, sacrificing, by this means, not only a large amount of their hard earnings, but their health, the comfort and happiness of their dependents in many instances,—throw away at the same time both the opportunity and the means of self-culture,—erect a complete barrier to their own advancement,—and themselves and families have, as their only reward, the humiliating reflection that they are sinking into poverty, neglect, and disgrace, whilst those with whom they once had equal prospects, but who have devoted to self-improvement what the former have sacrificed to Bacchus, are sustaining respectable positions—positions from which they themselves have been effectually excluded by having preferred sensual and temporary gratification to the more lasting blessings of industry, temperance, and frugality.

Could our artisans be induced to cast off entirely the fetters which a love of drink binds about them, we should soon be surrounded by a class of men characterized by intelligence, industry, and skill, and that which is now a lamentable truth would no longer be so,—that "Monday is a bad day for many, though a good one for the publicans."

W. S.

#### SCENERY AND PANORAMIC VIEWS.

EASTER Monday having brought its usual amount of new extravaganzas, I looked into the last number of *THE BUILDER* for your accustomed notice of what the scene-painters had been about, and was sorry not to find it. Pray do not abandon the course you have hitherto pursued in this respect. Much advantage has admittedly followed it, and you have brought into notice a class of artists up to that time too little regarded, while at the same time you have led them to give some thought to style and to avoid vulgar incongruities.

A DRAMATIST ARCHITECT.

We have no intention whatever of giving up our notices, being perfectly satisfied of their usefulness.

The *Lyceum Theatre*, in an elegant version of Garrick's "Cymon and Iphigenia," made into capital fun by Mr. Planché, had a good opportunity to exhibit that high ideal of pastoral dress and scene entertained there, and

have taken full advantage of it. The taste shown in the costumes would justify any commendation, and in the two principal scenes, "Uganda's Palace in the Garden," and the closing "Bower of Roses," with a most ethereal distance, Mr. Beverley well maintains the reputation which Mr. Planché has enabled him to achieve, and we have spread.

The *Haymarket* capital edition of "Ivanhoe," by the Broughs, is made to depend more on the pen than the pencil, though some of the illustrations are far from indifferent. The early scenes are Norman, with evidence of attention to details. One of the *personæ*, "Robin Hood," says he is no architect,—for "though a Robin I am not a Wren;" yet all his men are said to have berths in "the Woods and Forests." But, says one,

"Don't call them bricks, they'll think you mean to scoff 'em,  
And give no duty, since the duty's off 'em."

In the new piece at the *Adelphi*, called "Playing First Fiddle," an amusing vaudeville spectacle, is a cleverly-arranged scene of the gardens of Chislehurst, with clipped hedges, beds with flowers, garden pavilion, statues, and gravelled paths.

The *Route of the Overland Mail to India*, in Nash's old Gallery, Regent-street, now that it is completed, would warrant even stronger commendation than we have already expressed. It is a most brilliant work; and the success, we are happy to find, is commensurate. The views of Malta, Cairo, women drawing water, Ceylon, and Calcutta, are singularly beautiful and effective,—the whole result a triumph.

The *Panorama of the Nile*, at the Egyptian-hall, Piccadilly, has at last obtained that recognition of its merits on the part of the public which it deserves, and is daily and nightly crowded. The proprietors will not be able to say, *De Nile* (Oh!) *nihil fit*. The added view of the rock-cut temple of Abou Simbel is a fine picture.

A panorama of the route from the United States to California, showing the diggings, buffalo snaring, &c., is said to be ready for exhibition.

#### NATIONAL INSTITUTION FOR EXHIBITION OF MODERN ART.

The exhibition of this society, in their new galleries, Regent-street, will be opened on Monday. It is an exceedingly interesting collection, and so arranged that every picture has a good place. Amongst the most noticeable works will be found pictures by R. S. Lauder, E. Lauder, Desanges, McLan, Mrs. McLan, Maculoch, Barraud, Percy, Niemann, Newenham, A. W. Williams, Rosetti, Deverill, Dukes, Harris, Rayner, Middleton, Hulme, Armitage, &c. Mr. Bell Smith is the secretary. The difficulties which have hampered the erection of these rooms, if duly set forth, would form an amusing and instructive tale. The lessee's architect, by whom they were built, was Mr. Tyerman.

#### LOCAL SCHOOLS OF DRAWING AND MODELLING FOR ARTISANS.

ST. PANCRAS.

On Tuesday evening, the 9th, a meeting was held at the St. Pancras National School, to promote the formation of schools in this neighbourhood for the instruction of workmen and others in drawing and modelling. The chair was taken by Mr. S. C. Hall, F.S.A.; and on the platform were Lord Compton, Professor Donaldson, Mr. Latham, Mr. Fenton, Mr. Fairholt, Mr. Seddon, the Rev. D. Laing, Mr. Cave Thomas, Mr. C. Lucy, Mr. J. N. Warren, &c.

Before the commencement of the proceedings, upwards of 400 persons had assembled, the majority of whom appeared to be working men and apprentices, and who manifested throughout the evening a warm interest in the object of the meeting. A prospectus of the intended "North London School of Drawing and Modelling" was circulated in the room. This document set forth the acknowledged want of tasteful native workmen in this country, and the consequent necessity of offering to the English artisan opportunities of acquiring a power of correct and artistic execution. It fully recognized the value of the Government School of Design; but stated that the great distance of that establishment from the localities inhabited by the workmen employed in casting and chasing metals, in masonry, carving, plastering, cabinet-making,



painting and decorating, &c., virtually excluded that class from its advantages. On these grounds it was proposed to establish, in various parts of the metropolis, local artisan schools,—the neighbourhood of Camden-town being selected for the first of such establishments. A school was proposed to be opened in that district for instruction in drawing and modelling, on payment, by adults, of 1s. 6d. per month, and by lads under fifteen years of age of 1s. per month. The school to be open three evenings in each week.

The Chairman opened the proceedings in an eloquent and admirable address, in which he forcibly urged the importance of art-education to the class of operatives mentioned in the prospectus. The committee were not only about to set an example, but to follow one; as they had formed their plan not only on the model of the Government School of Design, but more particularly on the schools of Paris, where there was one in every arrondissement. They had no connection with the school at Somerset House, though they had any feeling in the world but that of hostility towards it. That establishment was, however, far removed from the homes of the workmen, and he could state that it was at present so full that a student could not be admitted without three or four months' notice. The school now proposed was actually formed, a room capable of accommodating 200 students had been engaged, and half-a-year's rent paid. Subscriptions had been raised amongst manufacturers, artists, and other gentlemen of the neighbourhood, and he hoped that subscription would be aided by the shillings of the workmen, so that the plan might be successfully carried out. Though chiefly intended for adults, the school would be open also to the young; to the sons, and he hoped even the daughters, of working men. The committee would give their best attention to its conduct and management, and he had much pleasure in stating that instruction would be given to the students by Mr. W. Cave Thomas, whose genius had been so justly rewarded in the Westminster Hall exhibition, and whose education in Germany and Italy, and more particularly his knowledge of the application of art to manufactures, peculiarly qualified him for the task. Though at first drawing and modelling only would be taught, the establishment must, in fact, become a school of design. He hoped none of his hearers would be deterred by the idea that it was too late to learn; and to refute that notion he referred in animated terms to Compton, the improver of the weaver's loom; to Lee, the inventor of the stocking-loom; to the late George Stephenson, the engineer; to Arkwright, Brindley, the poet Burns, Holcroft the dramatist, Sir Humphrey Davy, and James Watt,—all of whom were thirty years of age, or upwards, before they adopted those pursuits, or made those great discoveries, which had rendered them so famous. English workmen had the strongest capacity for any species of instruction: it was well known (and it was no reproach to the manufacturers) that many masters had men in their employment of superior abilities to their own; and the manufacturer could do absolutely nothing unless seconded by able workmen. In the approaching exhibition they would have to compete with those who were well trained to the wearing of armour and the use of weapons; but if such schools as that now contemplated were extensively adopted, he was confident the exhibition of 1856 would place this country far above every competitor.

A series of resolutions were unanimously carried, declaratory of the advantages to be derived from the proposed establishment, and pledging the meeting to support it by subscriptions and otherwise.

Lord Compton, Mr. Donaldson, Mr. Fairbairn, Mr. Seddon, Mr. Godwin, and other gentlemen addressed the meeting, and much good feeling was displayed between employers and workmen. Mr. Warren, the secretary, explained that the room which had been taken was in Mary's-terrace, High-street, Camden-town; that it would be opened on the 1st of May; and that the committee would attend at the school on the evening of the 24th, 29th, and 30th instant, to afford every information to those who might be disposed to join it.

### Books.

*Sections of the London Strata; to which is prefixed a Block Plan of the Metropolis and its Suburbs.* By ROBERT W. MYLNE, C.E., &c. London: James Wyld, Charing-cross. 1850.

This series of sections has been prepared and published, though imperfect in details, with the view of aiding the sanitary improvement of the metropolis, by a few contributions to our knowledge of the varying depths and undulations of the geological strata on which the metropolis stands, and into which its wells have been sunk. Of the five sections now published, the first, only, has the strata delineated in detail with geological references:

the remaining four sections are only in outline, denoting the depths of the several wells intersected, with the surface and chalk undulations. It is proposed to complete these from materials already collected, with an additional map, and letter-press on wells and water levels, &c.

*Iron applied to Railway Structures.* By G. DRYSDALE DEMPSEY, C.E. London: Atchley and Co., Great Russell-street. 1850.

This is a very useful and concise essay on a subject which has acquired great interest since the fracture which took place lately of the iron girder of the bridge over the river Dee, on the Chester Railway. A condensed report of the experiments that were subsequently conducted by Governmental authority, and which proved so unexpected in the results, is clearly stated, and, with the sections and diagrams of many recently-erected iron girder bridges, renders the work of much utility to all persons likely to engage in similar undertakings, though the subject might well have been treated of at greater length.

*Outlines of Experimental Chemistry; being a familiar Introduction to the Science of Agriculture, designed for the use of Schools and Schoolmasters.* By THOMAS TATE, late Lecturer on Chemistry in the Battersea Training College, &c. London: Longman and Co., Paternoster-row. 1850.

Students have here the substance of Mr. Tate's own lectures, as a teacher of chemistry. The treatise, however, is chiefly designed for the use of the teacher. It is mostly of a very elementary nature—as, indeed, it ought to be,—but it seems to contain all that is really essential to those for whose behoof it has been prepared, simplicity being one of its chief recommendations.

*Money v. Life; a Review of Colliery Casualties.*

By C. COLWELL, Southwark. Simpkin and Marshall, London.

This little volume is designed to give more publicity and exposure to the grievances of the poor labouring miners than they generally obtain, even with the best endeavours of the newspaper-press. Whatever be the result of the renewed inquiry by Government into the state of mines, directed in the present instance to an investigation of the condition of the northern coal districts, there is here enough, and more than enough, to show the necessity of immediate legislative interference, unless indeed the mine-owners against whom charges of so serious a nature are alleged can satisfactorily rebut these charges, which there is but too much reason to fear they cannot either truthfully or entirely do. Mr. Colwell especially recommends a stringent system of mine inspection, for the enforcement of proper regulations, the prevention of improper practices, the ventilation, and in general the proper conduct of mining industry, with an adequate regard to the lives, the limbs, and the health of the miners.

*The General Malaria of London and the Peculiar Malaria of Pimlico Investigated.* By A. URE, M.D. Orr and Co., Paternoster-row. 1850.

This is a pamphlet embodying Dr. Ure's view of the cause of the accident at the Kenilworth-street sewer, already set forth by us. We regret that it is pervaded by those personal animadversions which gave so unpleasant an aspect to the controversy between him and other eminent chemists; the pamphlet, moreover contains an assertion which, if not controverted, must do injury to Mr. Cubitt's and other important property throughout Pimlico.

*THE UPHOLSTERS' AND DECORATORS' BENEVOLENT ASSOCIATION.*—The first anniversary in commemoration of the foundation of this society, and in aid of the funds by which its beneficent views are to be carried out, took place yesterday, in the great hall of the Freemasons' Tavern, Great Queen-street, where upwards of 200 gentlemen sat down to dinner. The chair was occupied by Mr. C. Lushington, M.P., supported by many influential persons connected with the trade of upholstery, &c., and the result was a liberal subscription to the funds.

### Miscellaneous.

*CHALDEAN ANTIQUITIES.*—Letters from Bagdad state that Mr. Loftus, the geologist to the commission demarcating the Turco-Persian frontier, had visited the most remarkable ancient sites in Lower Chaldea. The ruins now called Werka, which represents the Ur of the Chaldees, whence took place the exodus of Abraham, were found to be of great extent. A vast number of ancient coffins of baked clay, highly glazed, and covered with figures of men in relief, were discovered in one spot, the coffins being adapted to the shape of the body, with oval ornamented lids: a water jar was attached to each coffin. Numerous bricks covered with cuneiform characters were brought away, together with pieces of terra cotta in the shape of bull's horns, and fragments of a hexagonal clay cylinder, inscribed with a long historical record, similar to that from Nineveh deposited in the British Museum by Mr. Layard. Mr. Loftus is the first European visitor to this primeval seat of the Jewish race. The commission will traverse a country studded with Chaldean ruins, and discoveries, therefore, may be made of the utmost importance in aiding the effort, by help of inscriptions from Nimrod and Babylon, to unfold the early history of the east. May not such discoveries also unexpectedly shed some collateral light on the early history of the west?—the extreme or transatlantic west, we mean. For instance, the singular practice in Ur of attaching a water jar to each coffin is adopted by American Indians to the present day. They also appear to bury in coffins much like these ancient Chaldean ones in shape. Another circumstance we may here remark with reference to ancient Egypt, and the alleged similitude of its architectural remains to some of those that have so lately and so strangely turned up in California and in central America. Some preserved heads of American Indian chiefs, which we happened to see many years ago, were clearly mummified by means of tar. Now Col. Hold, at a meeting of the Asiatic Society a short time since, observed, that during his residence at the Red Sea he ascertained that in all probability the ancient Egyptians prepared their mummies principally with the vegetable tar called by the Arabs Katren. The colonel, in fact, exhibited some specimens of tarred mummification of his own manufacture, in imitation of the ancient Egyptian process. The west and the east,—the 'new' world and the 'old,'—may not have been so totally disconnected in their ancient course of events as may have heretofore appeared to be the case. We may add, that we are quite aware of the idea (which may, for all that we know, turn out to be quite correct) that the Indian race is not that whose forefathers are supposed to have built those cities the extraordinary ruins of which have been recently discovered in America.

*THE BRICK TRADE.*—The following instructions have been received by the officers of inland revenue from the commissioners at Somerset House:—A drawback of 50 per cent. is to be allowed on all bricks remaining on the premises where manufactured, provided they be in fair condition, and have not been used, excepting for the external covering for clamps. Clamps are not to be opened for the purpose of ascertaining that the whole of the bricks are sound and perfect; but no allowance is to be made on clinkers, or bricks so damaged as obviously not to be marketable, as the 10 per cent. allowed in charging was intended to cover such contingencies. The Board expect the utmost activity and exertion, and desire that a fair and liberal interpretation be given to this order in settling the amount of stock on hand.

*FINSBURY PARK.*—The new park proposed for the borough of Finsbury, it is suggested, shall have its entrance at Highbury, passing along the right side of the Holloway and Hornsey road to the Seven Sisters'-house, from thence taking an easterly direction to the Green-lanes, and then proceeding south to the New River, completing the enclosure—a space of 300 acres. In addition, it is proposed to form an esplanade on the banks of the New River, which runs through the park, 15 feet in width, commencing at the New North-road, and extending to the reservoirs at Lordship-lane; the total cost of the undertaking being estimated at 150,000l.



**PROJECTED WORKS.**—Advertisements have been issued for tenders, by a date not specified, for the erection of gas works at Cremorne-gardens; by 30th inst., for the erection of a church at Radipole, Weymouth; by 24th, for the erection of a parsonage-house and offices at Sturry, Kent; by 23rd, for a manager's house and offices at the Consumers' Protective Gas Company's works, Woolwich; by 24th, for upwards of 300 squares of British plate glass  $\frac{1}{2}$ -inch thick, and for fixing same (separate tenders), for the new Market-place, Great Grimsby; by 1st May, for the erection of a building in the Walworth Villa Estate, Walworth-common, for the parish poor; by 18th inst., for the building and fitting of cells for reception of prisoners at the County-hall, Southampton, and for other works appertaining thereto; by 16th, for putting down about 3,000 feet of new pavement and 900 of kerb at Romsey; by 27th, for the enlargement and internal alteration of St. Nicholas Church, Worcester; by 9th May, for the erection of a training and middle school at Salford, near Birmingham; by 14th May, for paving and repairing carriage-ways and foot-ways in St. Clements Danes parish, and providing materials for same, for one year; by a date not specified, for making and completing a road, about 266 yards long, and 20 feet 6 inches wide, within three miles of the Post-office; by a date not specified, for laying down a tram-road at the City-road Basin; by 16th, for the supply, at per ton, of 600 14-inch main pipes, 9 feet long, for the London Gas-light Company's works at Vauxhall; and by a date not specified, for the construction of wharf walls in Wallasey Pool.

**THE NEW PRINTING PRESS AT PARIS.**—Mr. Gray, of the *North British Advertiser*, has visited Paris expressly on purpose to see this machine, and the result appears to be not only an order to M. Worms, the inventor and patentee in England as well as elsewhere, for the first of its kind, to print the *North British Advertiser*, but a confident belief on the part of Mr. Gray, that a new era in printing is opening on us through its aid, the one great peculiarity in which, besides a concatenation and simplification of various other processes, is "letterpress printing in the web." From Mr. Gray's interesting detail of its construction, we gather a few more precise particulars than those already given. The machine does not separate the sheets when printed—as they are, on both sides, almost simultaneously—but only partially divides them, so that the folder's work is greatly facilitated, as it also is by a crease produced for the folding. The web is carried off as it went on, only in any required length or portion. The stereotype mould consists of several layers of paper and paste, the latter thickened with a little Spanish whiting. The type form stands on a hot iron plate, and partially dries the mould, which is then laid within a hot semicylinder, where it is dried into a semicylindrical form in two or three minutes, and has another and concentric semicylinder fixed above it, so as to leave a uniform thickness of semicylindrical space, which is filled in with the fluid metal after the mould has been placed in the casting trough—another half cylinder. Two of the stereotypes are of course placed edge to edge on the printing cylinder, from which to print. To obtain an end view of this machine, says Mr. Gray, take a half-crown piece, and with the point of a lead pencil make eight circles on or round it, at a short distance from each other. On the first, to your left, write "Roll of Paper,"—on the second "First Form of Types,"—the third "First Impression Cylinder,"—the fourth "Second Impression Cylinder,"—fifth "Second Form of Types," sixth and seventh "Cutting and Creasing Cylinders,"—and eighth "Receiver." This rough idea, as Mr. Gray remarks, gives the whole of the end view, minus the inking apparatus, which is not new.

**ELECTRO-TELEGRAPHIC PROGRESS.**—At the end of 1849, the telegraph was in complete operation on the road from Vienna by Almutz to Prague, a distance of 279½ miles; by Brünn to Prague, 249 miles,—to Presburg, 40½,—to Oderburg, 173½,—to Trieste, 325 miles. Theline from the capital to Salzburg, by Luiz, will be shortly finished, and in a few months it is expected that from Prague to the frontiers of Saxony will be in operation. The line from Vienna to Munich is likewise in activity, and

since 10th Jan. the *Gazette d'Augsburg* has published the course of Exchange in Munich 20 minutes after it has been declared in Vienna.

—With us the progress is still in the wrong direction. The London and North-Western Railway Company, it is said, have lately received an official order from the Electric Telegraph Company immediately to discontinue the use of Messrs. Brett and Little's telegraph, erected on their line of railway, otherwise a bill will be filed in Chancery against them, and an action urged for recovery of damages for invasion of patent; but hinting at an amicable arrangement. The North-Western, however, in place of desisting from their purpose, are said to have given orders to Messrs. Brett and Little to lay down their telegraph forthwith on a new portion of their line between Clapham and Boulton-le-Sands, a length of 14 miles. Moreover, in place of the Telegraph Company being entitled, as they virtually claim, to the exclusive use of electric currents in telegraphic communication, a question in law has been started, namely, whether the power of their patent extends over any other sort of telegraph than one transmitting intelligence "through metallic circuits," as their own, it is alleged, is expressly described in their patent. It is feebly urged that a metallic semi-circuit is not a metallic circuit, and that the earth, which constitutes one-half of the usual circuit now at least in telegraphs, cannot be said to be the half of a metallic circuit, or to constitute, together with the transmitting wire, a metallic circuit at all. It remains to be seen what the lawyers and the judges will make of such a 'flaw' in the monopolite patent, if such there be. The Telegraph Company, we are sorry to repeat, appear, at all events, to have committed themselves to a wrong course altogether, in place of at once giving heed to the public discontent with their mode of management.

**FALL OF A WALL: COMPENSATION.**—Our readers may recollect the fall of a wall at the Hadleigh station of the Eastern Union and Hadleigh Junction Railway in September, 1847, on the eve of a regatta, and when much injury was done to a number of persons. One of the sufferers, a married woman, has just been awarded 100*l.* damages by a jury at nisi prius, although it was proved in evidence that the wall was strong enough for all ordinary circumstances, and that the cause of the accident was an extraordinary wind which occurred just as the wall was about finished, and which had rooted up trees and done other damage. The height of the wall from the ground, as given in evidence, was about 16 feet: 5 feet from the foundations was 14 inch work, and above that it was contracted to 9 inches, with a pier at the end, and piers intervening, 15 feet apart from centre to centre, making interspaces of 9 inch work. The piers were of 14 inch work, and went to the top of the wall,—the whole mass being thus bound together in panels from top to bottom. The brick and mortar were admitted to have been good. Walls of this description have been built on all the works, and have generally stood well.

**THE PREMIER'S VISIT TO MANCHESTER.**—During Lord John Russell's recent visit to the great cottonopolis—for the first time in his life, strange to say,—his lordship went, accompanied by Sir Benjamin Heywood, whom he had visited, to the iron works of Messrs. Nasmyth and Gaskell, at Patricroft, the works of Mr. Fairbairn, at Ancoats, and of course to some of the chief cotton-spinning and weaving-mills. At Nasmyth's the party were shown an immense steam-hammer (Nasmyth's patent) constructed for a house in New York, and the largest ever made: it falls with a weight of five tons, the entire weight of the machine being six tons. The action was shown upon another machine. Into a block of wood a nail was driven with blows not exceeding the weight of an implement wielded by the human hand; and then, with a single crushing stroke, the block of wood was shattered so that there was scarcely a fibre in it that clung together, and the sap flew out in all directions. They were next taken to a large machine used for cutting scrap-iron into shreds with as much ease as a lady severs her sewing thread with the scissors. His lordship appeared much interested in a machine used in boiler-making for bending plates of iron, and the method by

which the radius to which the metal could be bent was changed at pleasure. Another process, which interested him greatly, was the grinding of the speculum of a telescope, and the insertion of a glass into a cast-iron frame, where the mere sucking of the air from the tube beneath it is sufficient to draw it into the necessary concave shape. The iron planing machine was also examined, and its principle explained. At Mr. Fairbairn's, no portion of the fittings of the tubular bridge remained, but his lordship took much interest in examining the drawings. The model of a girder bridge, on the same principle, was shown. According to the *Manchester Spectator* a tubular bridge is now constructing on the Norfolk Railway.

**FIRE-BRICKS FOR FURNACES.**—The *Morning Chronicle* Commissioner, in his letter from Merthyr Tydvil, gives an account of a branch of industry carried on there, viz., the making of fire-bricks for lining the furnaces, and, indeed, for all other purposes where a material is required capable of withstanding intense and long continued heat. There are two substances, found in abundance in the coal and iron districts, which have the property of resisting, in a high degree, the action of fire: the one is termed "fire-clay"—a stratum of which is often overlaid by coal; the other is the "firewell rock"—a species of stone composed of quartz, blended together by a siliceous cement. Upon this rock repose the whole of the coal and iron-stone "measures." The bricks are used for lining the interior of the blast furnaces down to "the hearth," or receptacle of the fluid iron, which is always constructed of the stone. Experiments on bricks made of this fire-clay have satisfactorily shown that its capacity of resisting heat is fully equal to that of the better known and more generally used fire-bricks of Stourbridge. The manufacture of fire-bricks at these works is exclusively carried on by women, and a more humiliating and ungenial occupation for the sex is hardly to be found through the entire range of our industrial economy.

**METROPOLITAN COMMISSION OF SEWERS.**—At a general court on Friday in last week, the chairman, Lord Ebrington, expressed his regret, and that of the commission, that they should be obliged to get rid of some of their surveyors, but they felt it a duty to the ratepayers to reduce their establishment. The commissioners particularly regretted the necessity of parting with Messrs. Donaldson and Cresy. The names of the surveyors who have been retained are Mr. Phillips, Mr. Lovick, Mr. Gatto, Mr. J. Grant, Mr. Bazalgitte, and Mr. G. Roe.—Sir B. Hall, in Parliament, is to ask the chairman of the commission certain questions on this (Friday) evening.

**PLANS FOR THE BUILDING FOR THE '51 EXHIBITION.**—Between 220 and 230 plans have been received by the Commissioners. The committee met on Tuesday to begin the examination of them.

#### TENDERS

For the alterations of the Parish Church, Little Harrowden, and the New School, in the same parish; Mr. E. F. Law, architect.

	Church.	School.
Watkins .....	£736 10 0	£463 15 0
Bayes, Wilson, and Watts ..	745 15 0	425 15 0
Eaton .....	695 0 0	429 0 0
Berwick and Allen .....	680 0 0	415 0 0
Green .....	669 0 0	399 0 0
Lewis and Thompson .....	607 0 0	401 8 10
Broadbent and Hawley .....	610 0 0	424 0 0
Bennett and Son .....	590 0 0	375 0 0
Cosford and Fisher .....	545 0 0	393 0 0
Boddington and Wooner (accepted) ..	649 10 0	354 8 5
Abbott and Heddon .....	453 6 0	
Walls and Wittering .....	398 0 0	

For Gothic piers, curb, and railing, exclusive of foundations, to enclose dress grounds at West Brompton for R. Gunter, Esq.; Messrs. Godwin, architects.

Perry and Son .....	£1,316 0 0
J. M. Barrett .....	1,215 0 0
J. Glenn .....	1,150 0 0
J. Wilbraham .....	950 0 0
Cottan and Hallen .....	902 0 0
Grissell and Co. ....	895 0 0
A. Robertson .....	881 0 0
Knight and Son .....	790 0 0

#### MEETINGS OF SCIENTIFIC BODIES

To be held during the ensuing week.

TUESDAY, April 16.—Institution of Civil Engineers, 8 p.m.  
WEDNESDAY, April 17.—Society of Arts, 8 p.m.  
THURSDAY, April 18.—Royal Society, 84 p.m.; Society of Antiquaries, 8 p.m.  
FRIDAY, April 19.—Architectural Association, 8 p.m.











# The Builder.

No. CCCLXXVI.

SATURDAY, APRIL 20, 1850.

**A**LTHOUGH the third part (text) issued by the Architectural Publication Society, for 1850, contains much interesting and valuable matter, it is not exactly what we hoped to see it. In saying this, we do not wish to throw any blame on the Committee: they have done their best with the materials at their command, and moreover have supplied the best of the materials. We say it simply to stimulate others, to enable them to avoid, in future parts, what may be considered a weakness in the present. Its contents are a Translation of Stanislas l'Eveillé's "Observations on Pediments," (with illustrations) by Mr. J. M. Lockyer; a Translation of Roriczer's Treatise on "The Ordination of Pinnacles and the Construction of Canopies," by Mr. Papworth, with notes, partly by the translator and partly by Mr. Griffith; a Translation of part of a Chapter of Vitruvius,—("The Elements of Designs," with observations, by Mr. Pocock; Fuller's Chapter "Of Building," by Mr. Gerbier on "The Three Chief Principles of Magnificent Buildings;" Norden's "Surveyor's Dialogue;" an Essay, under the head "Campanile," by Mr. l'Anson; and the first portion of a list of terms (carefully prepared by Mr. V. Papworth) proposed to be inserted in a Cyclopædia of Architecture.

Norden's "Dialogue," which might *once* have been "very profitable for all men to peruse," occupies thirty pages out of seventy-five, and had no business there, according to our view of the society's purpose. To get original matter, however, is a difficult matter. Architects will send their sketch books, but are not fond of writing; and, discovering this, the committee, we see, have advertised their willingness to pay for essays and papers on subjects connected with architecture.

Mr. l'Anson's essay is nicely illustrated, including an elevation and details of the Campanile of *Sta. Maria del Fiore*, at Florence, contributed by Mr. Donaldson, who, in the midst of absorbing occupations, can always find time to aid a good work.

In the course of the essay, the writer has the following remarks on the Campanile at Pisa:—

"This is usually called the 'leaning tower;' but at this name does not convey a real notion of the bearing and form of the building. It is of a leaning tower, but a contorted or twisted tower. Like a tree, which, springing out of the shelving side of a rock, strives to become perpendicular, and bends its trunk by the force of vegetation,—so similarly have the architects, as they proceeded in the work, after the first sinking, endeavoured to right the building. The consequence has been, an irregular curvature in this great trunk, and an irregular connection of this irregular curvature with straight lines, which no perspective view can represent satisfactorily, and which could not be shown in a model, without the greatest attention and nicety.

"This edifice is of marble, 177 feet 10 inches in height, circular on the plan, and surrounded by two hundred columns, having arches instead of an entablature over the capitals. Its great renown has been earned, not by its beauty of design, or rarity of material; but by a singular inclination of 15 feet out of the perpendicular. Whilst constructing it, the

architects were not careful to sufficiently secure, by piles, the foundation or ground-work; for before it was half completed, the walls gave way, which obliged them to strengthen the foundation on the inclining side with great promptitude. The clear lower diameter is 24 feet, and the thickness of the wall 13 feet 5 inches. The upper diameter is 25 feet 5 inches, and the thickness of the wall 9 feet. Almost all the towers of Pisa, as well as many level lines and supports of the cathedral,—also the Observatory, erected in 1755, incline towards the south, in the direction of the Anio, the soil there being the weakest.

The campanile not only leans, but has sunk down altogether into the ground. The foundations appear to have cut into a vein of quicksand; and it has sunk so much, that the base could not be seen, were it not for the excavation around it. Standing inside the tower, and before the open doorway, a singular optical delusion is produced: the inclined jambs of the doorway seem perpendicular, while the perpendicular columns and windows of the duomo, seen through, seem inclined."

Part I., for 1850, is contributed to by Messrs. Scoles, T. H. Lewis, Smirke, J. Davies, Fowler, jun., Bell, R. H. Sharpe, and Donaldson, and contains many suggestive examples; for instance, those under the head "Screen Wall."

Amongst the most recently published works touching our speciality is Mr. Inkersley's "Inquiry into the Chronological Succession of the Styles of Romanesque and Pointed Architecture in France,"\* the result of an architectural tour in France extending over five years.

It consists chiefly of extracts from authorities having reference to the dates of various buildings (84 pages), and concise descriptions of some of the buildings referred to (227 pages), but is preceded by an essay on the Romanesque and Pointed Architecture in France (38 pages), containing his deductions from the facts collected. The object of the work is to define with greater exactitude than has hitherto been done the rise and duration of the Consecutive styles in France. The question of priority of France and England in the successive stages by which the progress of the art is marked, forms no part of his plan; but the writer's own deduction from the dates he has collected is,—

"That the use of the Pointed arch in France (no matter whence derived, or by what necessity suggested), was an anticipation upon its adoption in England by a considerable period; that the confirmed First Pointed, or Early French style, likewise took precedence of the Early English, except, perhaps, in the province of Normandy; that the Geometrical Tracery, or Decorated style, was invented and brought to perfection by our neighbours half a century before our English builders began to imitate it; that this style, from the peculiar circumstances before alluded to, maintained its ground long after the appearance of the English Perpendicular style, which had attained its highest degree of splendour at a moment when French Flamboyant was but struggling into existence, whilst the latter, in its turn, still preserved itself pure and unmixed, at a time when the former had become utterly debased, corrupted, and disfigured."

In Normandy, the unmixed Romanesque style was persisted in some time after the adoption of the Pointed arch elsewhere. Mr. Inkersley has brought together a large number of dates and facts, which will be found of great service by succeeding writers.

In looking through some of his descriptions, we have been recalled to a recollection of many bright and pleasant days in our student-time, when with sketch-book under arm, note-book in pocket, and knapsack on back, we rambled

from one church to another (a steeple-chase without cruelty), earnestly striving after much more than we were able to achieve, and laying up, as we now find, most pleasant memories to fall back upon in more prosaic hours. We could get away from England in these times, without having the fear of employers or printers' boys before our eyes, and we counsel our young friends that much which they may with ease do in early life, by rightly using the opportunities presented, will be found difficult, if not impossible, when the world has put its ties about them.

To return, however, to books. Mr. E. Sharpe's work on the "Windows of the Decorated Style," now completed in two volumes, is a valuable addition to the library; not because it supplies a large number of good examples, which may be introduced without thought, by lazy and incompetent practitioners, into new buildings, but because, in the treatise which forms the second volume,\* the principles which guided the mediæval architects in their construction are ably investigated, and the various steps of progress are traced and fixed. We cordially recommend it for careful study.

When the work was commenced it was described, generally, as a collection of examples of the *Decorated* period, but the author has since seen that it is difficult and inconvenient, if not actually incorrect, to comprehend the whole of the tracery of the so-called "Decorated" period in one undivided class. Finding that they are divisible into two classes,—one in which the leading lines of the tracery are *geometrical*, and the other in which they are of *flowing* character,—he proposes, instead of following Rickman's division of traceried windows into two classes, "Decorated" and "Perpendicular," to name the three styles *Geometrical*, *Curvilinear*, and *Rectilinear*, and to allot the following periods to them:—*Geometrical*, 1245 to 1315; *Curvilinear*, 1315 to 1360; *Rectilinear*, 1360 to 1500.

We will only add to these notices, that the "Churches of the Middle Ages" has reached the Sixth Part, which contains illustrations of St. Mary's Chapel, Temple Balsall, Warwickshire; and St. Andrew's, Heckington, Lincolnshire. As we have said before, such works are not to be used as collections of doors, windows, fonts, and spires, ready to be applied wholesale, but as affording suggestions for new arrangements and fresh combinations.

## THE ARCHITECTURE OF THE DAY.†

**U**NDER the head of incompleteness, may be mentioned a defect which is probably more peculiar to the present day than any other. The greatest fault of many public buildings is, that all the architecture about them is the front, which is merely a decorated wall. The plea for this would be, the great expense of carrying the same degree of architectural character throughout. But is that, I would ask, a sufficient excuse for the sacrifice of the most important qualities of art? Where is the primary quality, unity? That must inevitably be sacrificed. The building is one thing—a substance,—the front is another—a superficies: it is a thin slice of architecture in front of a barn. Such are many dissenting chapels, and some churches. Now this is a great fault, and owes its origin to a very mistaken vanity. The sides can in general be as much seen as the front, and as we must judge of any building from all we see of it—from its *tout ensemble*, it cannot possibly look respectable: nobody

\* "A Treatise on the Rise and Progress of Decorated Window Tracery in England." By E. Sharpe, M.A. London: John Van Voorst.

† See p. 159, ante.



ever takes the front as a sample. However limited we are in respect of cost, it would be best spread all over it, and not confined to the embellishment of a part at the expense of the rest.

But this superficiality of character pervades, in a greater or less degree, almost the whole of our practice:—porticoes are too often a mere surface decoration, too shallow to be either useful or effective in appearance. (In respect to utility, closed porches would be most suitable to this climate). In the large and important portico of the Revenue Building, Liverpool, a feature twice repeated, utility is entirely overlooked, when, if it had been attended to, greater power and beauty would have resulted. Owing to their smallness of projection, in proportion to their height, they are, as to the genuine purpose of porticoes, viz., shelter from sun and rain, perfectly useless. Beauty and utility generally go hand in hand, and are sacrificed together, and this is an instance of the latter result; for had these porticoes, instead of one, been two or more intercommunications wide, they would not only have afforded protection from the weather, but have produced infinitely greater effect of light and shade. Convenience should go first, and let ornament follow to decorate her requirement: much beauty, however, arises spontaneously under her feet. Compare these with the portico of the Pantheon at Rome, which, while it is a genuine portico, is also eminently effective pictorially.

There is another respectable building in Liverpool, where an error has been committed of a graver nature than the one just alluded to. A large and expensive portico graces its front, but the objection to the Custom-house porticoes, of not sheltering their doorways, cannot be urged against this, for it has no doorway to shelter. Its office is a complete sinecure: an entrance door is placed on each side of it, in its near neighbourhood, but unprotected by its embrace, either from the pelting storm or scorching sun!

The fault of many of our villas and town houses, and which is akin to those I have enumerated, is, that what is properly called the architecture is put in a single patch, at the expense of the rest, which is utterly destitute of character: it is not carried out to the production of anything like unity or harmony, something of which might be obtained with comparatively little additional expense, as in many of them but slight indication of style is absolutely required beyond the principal feature of porch or portico. In the latter we frequently recognize a Grecian doric, or other classic gem of the first water, while no trace either of Greece or Rome is discernible elsewhere. We have doors pilastered and pillared, while windows are entirely neglected; the former, perhaps, rejoicing in all the graces of the Parthenon, while the latter are merely glazed holes.

This sharp abrupt cutting of the aperture of windows, as well as their straight outline, is unnatural, and is one of the chief causes of a want of feeling, a coldness and harshness, observable in too many town and suburban houses of the present day. Whilst, in the Pointed style, this preparation or gradation is made in the humblest erection, by the beveled or chamfered reveals, in the classic styles it is frequently neglected in the most important buildings. But no public building or dwelling-house pretending to architectural character or style should have its windows without architraves of some kind, as a transition from the pier to the aperture. In brick houses the want of this is less felt, as the frequency of the joints, in some measure, relieves the reveals. Provision for depth of shadow is still oftener neglected, and, without depth, we cannot communicate to the whole composition the grand quality called *breadth*. If we have shallow cuttings only, the shadows will be all in patches, or spots. Projections and recesses should, if possible, be of various depths and sizes; but invariably there should be one broad and deep shadow provided for, to unite the others, which will become secondary to it. This will be obtained by the portico, porch, or deep door recess. We want deep recesses for shadow, and great masses for light; but if we attend to the shadows, nature will take care of the lights. In a perfect picture there must be a complete

gradation: no two shadows or lights must be equal, but must differ either in size or intensity; and, under a favourable solar and atmospheric effect, assisted by the accidental shadows of clouds, this will be the case in a well designed building. It will have all the qualities of a good picture.

This is a subject well worthy the study of the architect, who should know as much of the nature of chiaroscuro as the painter. There are points to which much importance is attached by the latter, which are comparatively unheeded by the architect, though of equal consequence in a building: the principle of concentration, for instance, on which great stress is justly laid in painting, has perhaps never been sufficiently carried out in architecture. The fundamental principles of composition are common to the plastic arts, which, though different in their technicalities and modes of expression, are one in their origin and their end, and governed by the same principles of taste, the same laws of grace and beauty, and consequently, requiring similar faculties of mind in their professors, will be found to illustrate each other.

I have witnessed in one or two public buildings evidence of an undue ambition, on the part of the architect, for a long perspective of windows on the sides, which has operated to the production of a narrowness beneath the dignity of the building, and greatly interfered with that breadth of effect for which I have been contending. The object is a desirable one; but it must not be obtained at such a sacrifice, by so cutting up the walls as to reduce the windows to mere slits, and the solids to mere props. In buildings so treated, there can be no repose of light, for which broad masses, not mere slips of masonry, must be provided.

The more frequent use of curves in windows, doors, and their details, would do much to remove the coldness and harshness to which allusion has been made, and give a more artistic character to our fronts. Circles, ellipses, and other curves, are not made sufficient use of at present, either in the forms of construction or decoration: many forms might be used which are at present excluded under false impressions as to purity of style: the rose window, for instance, need not be confined to the Gothic styles,—modified as respects its details, divested of its Gothic character, it might shed its bloom upon the Anglo-classic building also. Polygonal and other regular figures, the circle inscribed in the square, and other combinations of geometrical forms not much used at present, would, variously applied, be fertile in beauty.

Another defect in our architecture, to which I beg to call attention, is the inadaptation of art to nature. A great deal might be written on the suiting of country houses to their situation. The situations or sites of such houses are very unlike—nothing can be more so—and therefore a wide field for variety in the character of villa architecture arises at once. Let us suppose a gentleman's seat to be required on the banks of the Thames, in Surrey or Berkshire; another in the gorge of Borrowdale; and another on the margin of Culoden. Now, though these three villas might be required of precisely the same internal capacity, and for inmates of similar station and habits, yet the judicious architect would have their form and composition of a totally different character. In a mountainous district, as we cannot compete with nature on her own ground, reason, I think, would dictate, as a means of obtaining effect, the expansion of the composition horizontally, but point out the folly at once of attempting to produce it by height; besides, shelter and comfort is here naturally sought, and exposure unpleasant. On the wooded gently undulating banks of a river, height might be resorted to for this purpose, as there would, in such situations, be only trees to rival, unless it were required to have the house at the foot of a slope, crowned with wood, and then it would have a more domestic and comfortable look if kept down,—while, on a plain, uninterrupted either by wood or undulation, both height and horizontal extent might be resorted to with success; that is to say, one part might rise, in the nature of a tower, above the adjoining part, which adjoining part would also be made effective by extension horizontally. The most

powerful object on a plain, as the ancient Egyptians well knew, is a pyramid, as it involves both height and width, and gives the greatest possible expanse in each direction, with a given quantity of materials; and this would suggest a pyramidal composition for a similar situation.

Wordsworth and others have complained of the beauty of the lake district being marred, and many fine prospects even destroyed, by the “flaring gentlemen's houses” within the last thirty years erected, to the disturbance of that peaceful harmony of form and colour which had hitherto been preserved. This arises, I conceive, entirely from inadaptation: on the embellishment of many of them no expense was spared; they were built by persons ambitious of producing something fine, and who believed every addition they made to be an improvement to the scenery. Had they hearkened to the whisper of nature, and built of such form as the site seemed to allow them,—nay, to invite them—to take, instead of being eyesores, they would have added a charm to the landscape, which architecture judiciously applied, tastefully fitted, as it were, into the beautiful bosom of nature, must ever give to her scenery, and which the poet, I am sure, would have felt and appreciated.

But the English lake district is not the only locality so disfigured. The romantic and diversified scenery of the Clyde has suffered from the same cause. To a person sailing up that river, the villas on its banks appear so entirely cut out from the ground, as to be complete blots on the landscape, and did not experience too soon suggest the truth, might be taken for aerolites dropped from the clouds, or shot from the moon. Abortions of art and unadoption of nature, they have no relation to anything about them, and though in really large houses, yet, being seen with mountains for their background, and nothing else with which they can be compared, they look like so many dove-cotes, or fly-boxes. But the great fault, and the one which leads to this comparison, is their want of harmony with the surrounding scenery, and of union with the ground, from which they rise abruptly, without the least preparation. No intermediate link is used between the everlasting hill and the house of yesterday,—no blending of the one into the other; the tables of nature's law lay under their feet; she had given them examples in trees and hillocks, and every surrounding object, and yet not the least hint was taken by their builders.

Now, this is a fault that might be easily avoided. There are three means by which union between the house and the ground is obtained, viz., form, texture, and colour. The two first are exemplified in the untooled, boldly projecting plinth and continued stylobate, which we sometimes, but too seldom, see,—in the rustic basement, the terraces of the Italian villas and Elizabethan houses (which, by the way, possess great capabilities for picturesque effect),—in any arrangement, in short, that widens the base, and imitates the rough texture of the ground. As to the first, viz., form, it was the principle recognized by the Greeks in their invention of the column, the shaft of which did not rise out of the ground without the intervention of the base, which again was received by the sub-plinth and pedestal. The Grecian Doric, though a seeming exception, acknowledges it, by its sudden diminution: it was also strikingly recognized in the steps which surrounded their temples. The basement of untooled stone forms a good bond of union between art and nature. Nothing is more ridiculous than to place carved ornaments, or highly finished masonry, on the ground-story of a building, within reach of injury by violence or accident. It is worse than waste of expense, for rude texture below heightens the effect of delicacy and finish above. The few country houses I have seen, in which this principle is observed, are really charming objects: one is reminded by such buildings of some rich natural production: at a distance they look like gems sparkling in the sun, polished only on their upper sides. As to the third mean, viz., colour, that is as important as the others, and as often neglected: the rule, as a general guide, suggested by Sir Joshua Reynolds, that the colour of the house should have a shade of the colour of the soil, is a good one; but two colours of stone, or brick with stone dressings



or rough cast (not stone-mimicking cement) and stone dressings, harmonizing with each other and with the ground, might be used. To produce the picturesque, time would scarcely be needed beyond a year or two to take off the first bloom of newness, if we exercised but judgment in the choice of form and colour. What a contrast would some of our country seats present to the Italian villas among the rocks and slopes of Tivoli and Frascati, which form, with their terraces, rising tier above tier, the finest possible outlines, uniting them with the scenery with which they are surrounded. But as great a contrast is presented by them with our ancient domestic buildings—our old English. I have paid some attention to manor-houses and cottages, and, as far as my opportunities have extended to these interesting objects, I am of opinion that nothing could be more suited to our country, more in harmony with its scenery, and consequently more picturesque than many of them are, or were. Our forefathers, in their erection, yielded themselves up to the teachings of nature, and the buildings grew out of the circumstances of soil and climate, the requirements of health, habits of decency, and the usages of social life. Some of these old houses exhibit inconvenience of arrangement that present architectural skill could easily have avoided; but, designed by their builders upon original principles, in which their own simple but unbiased judgment had due weight, they are objects that must be pleasing to every man of true taste. As to the exterior, it seems, in many instances, not to have been the product of study or design, or to have been much cared for at all, and yet it is picturesque,—a result, I consider, of consistency and truth. There is no greater enemy, I believe, to real beauty than falsehood. The sham is invariably displeasing when detected. Some have gone so far as to denounce it on moral grounds. Without entering so far into the question, I think we should avoid lying, in architecture, as well as in everything else;—if it be not a breach of the moral law, it is of a law to which every architect must succumb, for truth is a law of art, and much beauty has been lost for lack of it. The first step to greatness is to be honest; and there is a moral power in truth that refines and exalts in architecture, as in everything else. “*Esto quod esse videris*” (“be what you seem to be”) would be no unfit apostrophe to a rising architectural pile: in every building I would recommend that the internal arrangement should, in a great measure, manifest itself in the exterior face—as in the human frame, and other organized structures of nature. The plan and section of a building I would have dictate the general character of the elevation, as the elevation should, on the other hand, hint at the plan. One should be an index, not a veil, to the other. The elevation should, if I may so speak, be transparent, that we may see through it something of the interior arrangement of the structure. In fact, if the internal division, both horizontally and vertically, were more distinctly indicated on the exterior, there would be more variety in our buildings,—we should have, not only greater truthfulness, but more character.\*

S. H.

## COPYISM IN ARCHITECTURE.

It is not, of course, to be expected that I should answer every one that comes forward to controvert the opinions I have expressed in your journal; but as Mr. Scott does so in his own name, and in perfect fairness, I would not willingly be guilty of the disrespect of passing over his letter in silence: not that I shall attempt to answer each individual assertion: what I should have to say in reply, is, in nine cases out of ten, contained in the two letters I have already addressed you on this subject, and it is better your readers should turn back to them if they wish to judge between us, than that your space should be occupied by a reiteration of reasoning, which could only be made more plain by being repeated with more detail than is compatible with a weekly journal. After all, the writer in question differs from me more in degree than in reality. He pleads for a Gothic revival, as an educational process

(an admission that is all I ever asked or contended for) and as a starting point, deprecating correct copying as much as I do; while all that I ask is, that architects should at once lay aside their school books, and act as thinking and reasoning men. To this point I shall not, therefore, address myself, but to one a little more personal, but so illustrative that I hope I may be excused the apparent egotism of it.

Your correspondent seems to think that all that is required to induce me to change my opinions is “a few months’ humble and patient examination of our ancient churches.” If I had not done this I would never have ventured to express publicly an opinion on the subject; but it is because I have spent years after years in this study, and devoted the best part of my life to the elucidation of mediæval art, that I ventured to speak. I have been fortunate enough to be able to extend my personal observation over the greater part of Europe, and have omitted no opportunity of acquiring information regarding those buildings I have myself been unable to reach. If Mr. Scott knew with what enthusiasm I have pursued this study, he would not accuse me of trying to depreciate what I so earnestly admire. It was, however, precisely by that very extended course of study that I got beyond the forms of the art to the principles I am advocating.

If it would interest any, I could show dozens of plans, sections, and elevations of correct Gothic cathedrals and churches over which I spent many a busy day, and dreamt through many a restless night. They are as correct as he could wish,—nothing is omitted that authority could suggest,—the sculpture is as bad, the drawing as rude, and the colouring as crude as the most enthusiastic archæologist could desire. I have by me manuscripts which now seem more amusing than creditable, written in the same spirit. This was my education, and while it was going on I thought and wrote precisely as my opponents do now; but I have got past that now; and so, I am convinced, would others, if their professional avocations would allow them leisure for the purpose. Every architect, I believe, must pass through this stage, and I do not therefore complain of it. But I do complain when I see them repeating by rote their school lessons at a time of life when I think that, as men, they ought to be able to think for themselves, and to apply the education thus received to the wants and exigencies of the age in which they live.

What would the world have said if Walter Scott or Lord Byron had published only their “pot-hooks and hangers,” or their school copies and exercises? or what should we say to a senator who got up in Parliament to repeat the first book of Virgil or an ode of Anacreon? It was proper they should learn these things, and be thoroughly imbued with them, but the object of the educational course was to enable them, when grown up, to express, clearly and forcibly, the poetry and reasonings with which their hearts were filled, and to address themselves at once to feelings and exigencies of the age in which they lived—not in an obsolete language, but in that of their own time and of their own race.

My own impression is, that no architect can ever do anything that is either great or good unless he first imbue himself not only with the forms but with the principles of both Grecian and Gothic architecture, and that to such an extent as to enable him to appreciate, and consequently to admire the production of the “great of old.” So far I believe opponents will go with me: we only differ in the application we should make of this educational process. I would wish the architect to make the same use of it that every gentleman does of what he learns at school. Neither our poets, or historians, or statesmen—none, indeed, of our great men, ever repeat what they learned there,—seldom, indeed, directly allude to it,—but all apply it indirectly to enabling them to express better, in the language of the nineteenth century, what that age demands of them.

When architects do this they will restore their art to the high position it ought to take among the utterances of the human mind. While they still, as Mr. Scott pleads for their being allowed to do, only repeat their school-day lessons, they must be content to bear their art called puerile and treated as such, and to

see it remain utterly unworthy of the age in which it is practised, and of the men who devote themselves to it. J. F.

EARLY DOCUMENTS CONCERNING  
FREIBURG MINSTER.

In Dr. Schreiber's History of the Freiburg Minster, which accompanies the lithographs in the “Denkmale Deutscher Baukunst des Mittelalters am Oberrhein,” there are copies of many documents relative to the building of the minster. The following is a translation of some of them referring to the building of the new choir:—

## Lodge Accounts.

“In the year after the birth of Christ 1471, the minster wardens of Our Blessed Lady, Juncker Melchior Bauer, Michel Mittag, and Hans Heyniger, have, according to the recommendation of the city council, begun to build the new choir: the secretary to the lodge at this time is Johannes Frithofer, chaplain; and the building commenced on Friday before St. Michael's day in the aforesaid year.

Item. On the same day five labourers (*knecht*) brought stone for the choir; and to each was given 14 penning per day, which make 53 schilling 4 penning.

Item. On the Tuesday after St. Simon and St. Jude four labourers were excavating for the choir foundation, at 1 schilling per day each, making 4 schilling.

Item. On Saturday after St. Gall, Meister Hans von Grätz came and brought with him three workmen (*gesellen*), and on the following Monday began to work stones for the choir.”

Agreement with Meister Hans Niesenberger,  
from Grätz, in the Minster Archives.

“To wit, That we, burgermeister and council for the city of Freiburg, in the Breisgau, have, to the honour of Almighty God and his blessed mother, the Virgin Mary, chosen the respected Meister Hans Niesenberger von Grätz to build the new choir to the minster of Our Blessed Lady here in Freiburg, and to superintend, provide for, and build the said choir in the best manner, truly and honestly, as he and the wardens of the building shall agree; so long, until the said choir shall be completed, or until it shall be no longer convenient to the council to build. And when it shall not be convenient to the council to continue building, Meister Hans shall have a half-year's notice of the council's intention and his full wages; then shall Meister Hans have no further claims thereon. But if in case that, after a short or long respite, the building of the choir should be resumed, Meister Hans shall then have notice thereof, and he shall continue to build the said choir in the manner as before and after described in this document.

Item. Meister Hans shall receive at every quarterly fast (*fronfast*) five gulden as salary for his office as superintendent of the building, and he shall receive, in addition to the above, 2 schilling 2 penning per day, when he shall be actually engaged at the building, or in travelling to and from the same.

Item. Meister Hans shall come once to the building at each *fronfast*; he shall also have a good honest foreman (*halter*), and shall provide good workmen (*gesellen*) who come to and go from their work at the right time and work honestly.

Item. He shall increase or decrease the number of workmen according to the command of the wardens (*pfeger*); but Meister Hans shall have a month's notice of there being too few or too many, in order that he may know how to arrange matters; and if any workman be not suitable to the wardens, the latter shall inform Meister Hans or the foreman, who shall give the said workman a month's notice to leave the works.

Item. The foreman shall have 2 schilling per day, and the workman 22 rappen, from cathedra Petri (22nd Feb.) until St. Gall's day (16th Oct.). Item. From St. Gall's day until cathedra Petri, the foreman shall have 19 rappen and each workman 15 rappen per day. Item. And those workmen who shall be engaged in setting shall have 2 rappen per day more than the other workmen.

Item. Whilst the workmen receive the greater wage, they shall commence at five in the morning and leave off at seven in the

\* To be continued.



evening, or nearly so; and they shall have one hour in the morning, another at midday, and half-an-hour in the afternoon, for eating and drinking.

Item. They shall not have the afternoon half-hour on Saturdays nor on festival evenings throughout the year, nor from Holy Cross day in autumn until Holy Cross day in May; but they shall leave work at five o'clock every Saturday, and also every fourteen days at three, in order that they may go to the baths.

All woodwork shall remain the property of the minister.

Item, And if the *meister* should have a quarrel with any one, he shall have the difference adjusted here in Freiburg, in court, before the Austrian provincial governor and council, and he shall not take the case elsewhere, nor shall others than those resident in Freiburg meddle therein.

I, the aforementioned Meister Hans, have vowed by my word, without reserve, instead of an oath, to observe these items and articles, to proceed with the execution of the building, and all in connection therewith, honestly and continually, and to do all that may be found necessary truly and honestly.

And there are two copies of this document, each sealed with the seals of our burgermeister and council, and with mine, Meister Hans Niesenberger, on St. Matthew's Day, in the year of the birth of Christ, 1471."

*From the City Drought Book.*

"We, burgermeister and council at Freiburg, in the Breisgau, make known publicly with this document, that as Meister Hans von Grätz, having agreed to execute the new choir in the minister of Our Lady, and being desirous on account of his agreement to become a householder here, we and our successors have granted to him the privilege that he live here free of taxes, free in the trade, exempt from city service and all other incumbrances, except that he shall pay the corn tax and 2 pfennig to his trade's lodge, also his yearly house-rent; he is not however bound to pay the lodge for its orders and counter orders, since he will do it of good will. This document, sealed with our seal, is given on Wednesday before St. Matthew's day, in the year after the birth of Christ, 1472."

*Remarks on the foregoing Documents.*

The word *gesellen*, translated "workmen," literally signifies companions or comrades, and would seem to imply that there existed then a more intimate connection amongst all concerned in building than at present.

The word *balier* (foreman) is, in modern German, *parlier*, *polir*, *polirer*, and seems to indicate that his duties were principally of a talkative sort.

The pfennig was equal to 20 schilling, a schilling equal to 12 pfennig, and the gulden equal to 12½ schilling: rappen is synonymous with pfennig.

JOHN BURLISON.

#### THE PORTLAND GALLERY, REGENT-STREET.

SOME time ago a body of artists, becoming tired of "the spurns that patient merit of the unworthy takes," and thinking to obviate a few of "the thousand natural (or un-natural) ills that artist-flesh is heir to," conceived a plan of opening a "Free Exhibition," on principles advantageous to members of the profession not belonging to any of the existing bodies of artists, and affording an opportunity for the people generally to participate in the enlightening influence of the fine arts with those to whom such advantages are usually afforded at the price of a shilling. Five of the six days in the week were devoted to London at large, the sixth reserved for those who would wish to insure a more select attendance. Two years' experience, however, convinced the association of the inexpediency of the scheme, and they have now organized a society, called "The National Institution for the Exhibition of Works of Art," on a somewhat less liberal scale, though still intending to admit the public, and which, there seems reason to believe, will be permanent. The present exhibition contains many meritorious works and very few decidedly bad ones. Names hitherto comparatively unknown are affixed to pictures of undoubted excellence.

Mr. Lauder maintains his reputation; his picture (280), "Christ appearing to two of his Disciples, on the way to Emmaus," indeed surpasses what we usually see of his,—it is remarkable alike for its solemn treatment and high intention, is exquisite in colour and simple in composition. He has two able illustrations from "Quentin Durward." (45), "Gallioti, the Astrologer, showing Louis XI. the first Specimen of Printing"—wherein the subtle king is most successfully depicted and contrasted with the noble impersonation of Gallioti—is a specimen of the power of tone over the most lavish use of the richly-set palette. (166), "Maitre Pierre, Quentin Durward, and Jaqueline"—to our mind the better of the two—displays most charming feeling and refined taste,—the beautifully-qualified tints and harmonious greys are in admirable keeping with the subject.

In the landscape department (207), "A Woodland River," by S. R. Percy, takes precedence, and will oblige older hands to "look about them." A determination to represent nature as she is, and an imagination awake to her loveliest aspects, characterize this essentially English performance; the careful manipulation of the various weeds in the foreground, far from anything like pedantry, and the unshrinking perseverance after truth evident throughout, are quite invigorating after the many ordinary recipe compositions one sees in the course of the season. The producer of such a work is destined to stand eminent amongst the best of British landscape painters. (277), "Welsh Mountains," by the same, is admirable. (41), "Noon," by A. W. Williams, calls for an equal share of commendation, reminding one of a combination of the rugged Salvator Rosa, and the elegant, sunny Claude. This picture is apparently an adaptation from successful studies in Wales.

L. Desanges, is a name scarcely known to ordinary frequenters of exhibitions, but is appended here to a work of no ordinary merit (159), "The Examination of Robert, King of France, and his Queen Bertha,"—a dramatic incident, powerfully described by many figures gorgeously dressed and jewelled; the head of Bertha is a striking feature from her loveliness, and the whole of the *personne* influenced by the light of the torches form a remarkably clever and effective production. This with a very successful "Study" (116), a Bacchante, seemingly, are the most attractive of the many contributions of a clever and rising man.

Mr. Armitage, of Westminster Hall celebrity, has here a grand study of the human form divine, entitled "Samson" (57), likely in all respects to help his fame. (201) "Œdipus and Antigone," is a smaller picture, very French—very poetical. Niemann has some fine landscapes, in a style built more, perhaps, upon study of old masters than of nature, although the latter has not been neglected: (72) "A Landscape," is proof of what he can do. A little more drawing about the foreground to the left of the subject would enhance it in our estimation. (58) "Fenlworth, from the Tilt Yard" (154) "Norman Staircase, at the Old Mint, Canterbury," and (210) "Solitude," are able but somewhat mannered representations. Several excellent transcripts in water-colours bear testimony to a stored mind and ready hand, and show how forcible an agent the medium may be made.

Mr. M'Ian exhibits (55) "Here's his health in Water!" and (76) "The Highland Coronach," both improved repetitions of former pictures we believe. The true loyal Scotch feeling in these, and nicely painted as they are, renders them valuable both as works of art and national mementos. No artist evinces more "love" for his subject, or more painstaking determination to leave nothing undone.

(244) "Captivity and Liberty" is an exceedingly poetical notion, charmingly carried out by Mr. M'Ian, representing two imprisoned Scotch women watching a bird which hovers around its nest, in the window of their dungeon.

(283) "Belarius, Guiderius, and Aviragus returning from the Hunt;" James Eckford Lauder, R.S.A. Beautifully painted, reminding one a little of Etty.

(174) "Scenes from Henry IV.," C. Dukes, exhibits nice execution, but disagreeable colour; Falstaff here is not the unctuous morsel of fat mortality drawn by Shakespeare. The female characters are more happily conceived.

In a performance full of affection, Mr. Rosetti has shown himself a poet-artist, so much real genius (misdirected, though it be) pervades this, that one wonders how the author can so subversively submit his abilities to so confined a sphere. Surely light, shadow, and colour, with the marvellous mysteries of their respective influences are matters worthy the attention of a painter. Nevertheless, this is a striking work for intensity of expression and the cleverly arranged and carefully drawn white draperies.

(225) In proximity to the last, "The Princes in the Tower;" by Mr. F. Newenham, is an example of the rich full painting (directly the reverse of the Francia-like appearance of the "Ecce Ancilla Domini") characteristic of the British school.

To mention all the works worthy of notice, it would be almost necessary to transcribe the catalogue in numeral rotation, as is testified by the many works bearing the names of Hulme, Williams, Gilbert, G. Williams, D. W. Deane (by whom are two admirable small productions (91), "Fra Bartolomeo" and (97) "The Studious Armourer,") Buss, Barraud (who exhibits, amongst other works, the popular "Lord have Mercy upon Us!" and "We praise Thee, O God!" ), H. Duffield (a worthy follower of Lance), J. C. Bentley, H. M'Culloch (238, "Border Tower on the Yarrow," very charming, but hardly up to his mark), Dighton Hemslay (the popular walk somewhere between Webster and Farrer), Oliver, Winkfield, Wood, Cobbett, A. Corbould (whose portraits, though mannered, are by no means of an ordinary class), &c.

A pretty "Lavinia" (151), by Mr. Middleton, and some three or four sparkling fippancies, by Mr. Pasmore, also deserve a share of attention.

#### ST. JOHN'S NATIONAL SCHOOLS, KENSAL GREEN.

ON Saturday morning last, these schools were opened in the presence of about 300 of the villagers and the neighbouring clergy and gentry, by the Rev. A. G. Pemberton, the incumbent. The Bishop of London had consented to attend, but was unavoidably absent. The site of these schools (as well as the sites for the church, and the parsonage) was liberally given by the warden and fellows of All Souls' College, Oxford. The ground has a frontage of 40 feet towards Kilburn-lane, and a depth of about 280 feet. The schools are so arranged, that the boys enter from Kilburn-lane, and the girls from the Harrow-road, by a pathway, some 300 or 400 feet in length, which advantage was obtained by a further grant from All Souls' College, and by the Rev. A. G. Pemberton, giving up a portion of his garden.

Mr. Alfred Lang was the architect, appointed by the committee, and under his superintendence the building was erected.

The structures of a plain but substantial character, two stories in height, the ground story being for the boys and the upper story for the girls. The school rooms are 40 feet by 23 feet, and 14 feet in height. The class rooms are 16 feet 6 inches by 10 feet. A separate residence for the master and the mistress is attached to each end of the school building, but they have no internal communication with the schools, and contain living rooms 14 feet by 12 feet, kitchens, 12 feet by 12 feet, and bedrooms of corresponding sizes: the closets, &c., are detached. The contract was entered into with Mr. Edser for 1,229*l.*, but the total cost, including fittings, additional fence walls and fencing, and all expenses, will not be less than 1,500*l.* The schools will accommodate 340 children.

#### HEALTH IN THE COTTAGE AND FARM HOUSE.

Now that winter is gone, and the warm season is all before us, it is time to ask what has been done to prevent a recurrence of deadly contagion, or of endemic disease? Much discussion and diversity of opinions, many statistics and some plans for operation, have, indeed, occupied our rulers and our philosophers; yet I fear that but little has actually been effected for the permanent health of the people. But if every one would carry out that excellent adage, "Exert yourself, and God will help you," which is the proper translation of the French proverb,—even at the eleventh hour much might be done to avert the foul demon.

The attention of our Sanitary Commission has been chiefly turned to important changes, that will require time to carry out, after considerable delay in experiments and discussion; but there are many remedies within the province of humble individuals which are almost of equal importance, and quite practicable in a few hours. In the hope of others following the example, I will suggest one.

Whenever I visit a friend in the country, I am forcibly reminded at every turning of a lane, or at the corner of every field, that pure uncontaminated air is rarely to be found in agricultural or in marshy localities, especially after sunset, when plants cease to emit oxygen, and nitrogen abounds in these districts. But the great law of nature, the permeability of gases, and that other principle now well under-



stood in hospitals, which requires a certain proportion of miasma (say 7 per cent), to affect us with contagion, enable us to escape mischief in the open country; but nearer every farm-house, and worse in and around the cottager's abode, deadly vapours, in a condensed form, affect our senses. Pig-styes and calf-hutches, however clean they may be kept, are often, from want of light and of air, the cause of death to the animals themselves, and of sickness to those who tend them. To the same cause may often be ascribed the wholesale mortality among poultry. That which created the Tooting disease among children, I am persuaded, doubles the casualties of our farm stock.

But to come nearer the human dwellings. Of all places, the necessary, near a country residence, is perhaps the most poisonous, from exhalations of vegetable and animal origin, commixed and carefully shut down, perhaps for hours, until, being opened, the condensed venom let loose annoys our senses and overpowers our lungs and stomach; especially if this should occur late in the day or at night, when the effluvia are most noxious, and our power of resistance at its minimum. Constant ventilation must be the only safety-valve here and in many other cases. Nowhere ought there to be a close cover, unless there be ventilating pipes; and from my observation I am disposed to think that attention to this, in town and in country, would do much to reduce the amount of sickness and of death among mankind, and their property—domestic animals. Let country surveyors think of this. G. F.

#### RAILWAY JOTTINGS.

The contract for the station works for the Preston extension of the East Lancashire, at Preston, has been taken by Messrs. Samuel and James Holme, of Liverpool.—An iron bridge, of large dimensions, is in course of construction at the iron foundry of Messrs. Finch and Willey, Windsor. Its extreme length will be 500 feet, there being four arches or spans, one of 300 feet, and three of 100 feet each. The design is one by Mr. Brunel, C.E., and the structure is for the South Wales line, to cross the Wye at Chepstow.—A method of exhibiting the names of stations especially at night, by painting on wire gauze, and lighting when requisite from within a lantern faced with the gauze, is being adopted at Gateshead. The invention is one by Mr. Meik of Sunderland and Mr. Watson of Newcastle, and has been hitherto used on the dial of a tidal gauge.—Chamroy's Helical Railway, a patented invention, is proposed for the purpose of lifting or lowering carriages from one line of rails to another, on a different level. A line of rails is arranged in a helical manner, with a platform on three wheels, fixed at different levels. A vertical grooved shaft passes through the centre of this platform from top to bottom, and receives rotary motion from any prime mover. The platform is furnished with a bolt which may be slid into the groove in the shaft, and a rotary motion thereby imparted to it. On the platform rest the wheels of another, fitted with guides that embrace rollers fixed to the sides to prevent its revolving; and on this second platform is placed the load to be lifted. On rotary motion being given to the vertical shaft, the under carriage will also revolve, and travel up the Helical Railway. By reversing the motion of the shaft the loads will be lowered. The lifting of loads, or water, in mines, appears to have been the primary object of this invention, as described in the *Mining Journal*.—In the course of a recent trial at the Yorkshire assizes, it became a question as to what was a proper charge to be made by a railway engineer for his professional services, and an eminent engineer in that county was asked how much he charged per day as consulting engineer. The reply was, "That varies from 10 guineas to 100, according to circumstances." Our contemporaries of the newspaper press as they circulate the anecdote say,—this is "the way the money goes."—It appears from a return just issued, that the number of persons employed on railways open for traffic on 30th June, 1849, was 55,963, and the length of railway then open for traffic, 5,447½ miles, being rather more than 10 persons per mile. There were amongst them 107 engineers, 103

draughtsmen, 1,839 engine-drivers, 1,871 assistant engine-drivers and firemen, 1,631 guards and breaksmen, 5,508 platelayers, 10,809 artificers, and 14,029 labourers. The total number of persons employed on railways not open for traffic on 30th June, 1849, was 103,816, and the total length of railway authorized, in respect of which they were employed, was 6,636½ miles, of which 1,504½ were in course of construction. There were 269 engineers, 153 draughtsmen, 16,144 artificers, and 83,052 labourers. The total length of railway authorized to be used and constructed on 30th June, 1849, was 12,083½ miles, and the total number of persons employed thereon, 159,784.

—The railway calls are fast dwindling down to moderate limits. The amount required for the current month of April is 304,776*l.* against 884,249*l.* for the corresponding month of last year, the latter sum being itself a great diminution when compared with previous calls.

—The Tithebarn-street station of the Lancashire and Yorkshire Company at Liverpool is to be opened for public traffic on 1st May. It is stated, says the *Albion*, that upwards of 500 houses were pulled down to make room for the station. There are five lines of rails to accommodate the traffic of three companies; namely, the East Lancashire, the Lancashire and Yorkshire, and the Liverpool and Southport. The passenger station is covered in by two iron roofs, one of them extending 640 feet in length and being 136 feet span. The other roof is 80 feet in span and 160 feet in length. The rails are 30 feet above the level of the street, and by means of powerful machinery the goods waggons are raised on the line and lowered to the street in order to facilitate the loading and unloading. The works and buildings on the extension line and station are of an extensive character, and have cost a very large sum of money.—Mr. G. Shepherd, C.E., suggests, in the *Mining Journal*, that pulverized chalk might be used on greasy or slippery rails, to restore or increase the friction of the wheels of locomotives and trains in transit, and thus prevent accidents by the overpowering of the breaks, the force of which over the wheels would also, he observes, be directly increased by the chalk being carried from the rail round the wheel to the break itself. The idea of applying so trusted and immemorial an anti-greaser of tight-ropes and dancing-pumps to so useful a purpose in place of sand, is really a happy one, though unaccountably long in turning up. Mr. Shepherd also points out its advantage in ascending heavy inclines.—The *Wiener Zeitung*, of 7th instant, contains the announcement that a prize of 20,000 imperial ducats will be paid to the constructor of a locomotive with sufficient power to operate in tugging trains over the Semmering, which mountain intercepts the railway line between Neustadt and Bruck, on the Vienna-Trieste line.

#### THE NEW PRISON FOR THE COUNTY OF SURREY.

In arranging the designs for the Surrey new prison, now in course of construction at Wandsworth, under the direction of Mr. D. Hill, architect, it has been attempted to make them in such a way as to be uniform and complete for the number at first intended to be provided for (700), and that the future extension (to 1,000), should not interfere with the buildings erected nor destroy their uniformity. The buildings are designed in the plainest and most simple style, and of the most substantial kind. They are executed in brickwork, with stone dressings, quoins, pilasters, cornices, window sills, &c., and are arranged on the principle of Pentonville prison, and with the latest improvements in the various fittings and details.

There are 543 cells provided for male prisoners, and 165 for females, making a total accommodation for prisoners of 708 cells, not including punishment and reception cells: the whole will be thoroughly ventilated, and fitted up with soil pan or water closet, washing basin, with sufficient supply of water (a separate cistern being provided for each cell), and a gas light.

Rooms on the ground, first, and second floors, adjoining the central hall, have been provided for trade instructors. Baths have

been provided both for males and females supplied with hot and cold water.

The cooking kitchen, bakehouse, and serving rooms are entirely distinct from the main buildings.

The washhouse is likewise separate, and will be fitted up with washing stalls, each for one person, and supplied with hot and cold water. A tank for soft water is provided contiguous to the washhouse. The laundry is under the same roof, and will be fitted up with ironing boards, stoves, and proper drying closets.

The infirmaries, both for males and females, are entirely separated from the other parts of the prison, and are provided with separate airing courts.

The chapel will be fitted up with separate seats or stalls for 394 prisoners, pews for governor's and chaplain's families, and galleries for the officers. The approach for the females will be by a covered way and bridge, on the level of the chapel floor, and to allow of the chapel being filled as quickly as possible, six entrances are provided from the males' prison. There will be provided a board room, offices for governor, chaplain, clerks, surgery, visiting rooms for prisoners' friends, officers' mess room, offices for the steward and his clerk, waiting rooms, stores for provisions and raw material, &c. &c.

Within the prison, quarters will be provided for 24 male and 6 female officers. Quarters are provided on the outside of the walls for the governor, chaplain, assistant chaplain, surgeon, and for 6 warders.

The prison will be warmed by hot water, similar to the manner adopted at Pentonville, flues being provided for the admission of the warmed air to each cell, and extraction flues to carry off the vitiated air, these flues terminating in the ventilation shafts.

The whole of the cells, both for males and females, are 13 feet by 7 feet, and 9 feet high to the crown of the arch.

The engraved plan shows the prison complete for 1,000 prisoners: the back wing in the males' prison, and the left-hand wing in the females' prison, are those which are not being built at present.

The following are

#### THE REFERENCES TO GROUND PLAN.

##### Males' Prison.

- |                                 |                              |
|---------------------------------|------------------------------|
| 1. Waiting room.                | 11. Governor's office.       |
| 2. Officers' room.              | 12. Ditto Clerk's office.    |
| 3. Physician's room.            | 13. Store.                   |
| 4. Warders' room.               | 14. Inspection hall.         |
| 5. Ditto bed room.              | 15. Chief Warder's room.     |
| 6. Assistant Surgeon's parlour. | 16. Trade Instructor's room. |
| 7. Ditto bed room.              | 17. Surgery.                 |
| 8. Magistrates' waiting room.   | 18. Cells.                   |
| 9. Ditto room.                  | 19. Officers' rooms.         |
| 10. Prisoners' visiting room.   | 20. Infirmary.               |

##### Females' Prison.

- |                              |                     |
|------------------------------|---------------------|
| 1. Waiting room.             | 7. Matron's office. |
| 2. Prisoners' visiting room. | 8. Officers' rooms. |
| 3. Matron's sitting room.    | 9. Cells.           |
| 4. Ditto bed room.           | 10. Laundry.        |
| 5. Female Turnkeys' room.    | 11. Drying closet.  |
| 6. Ditto bed room.           | 12. Boiler room.    |
|                              | 13. Washhouse.      |
|                              | 14. Washing stalls. |

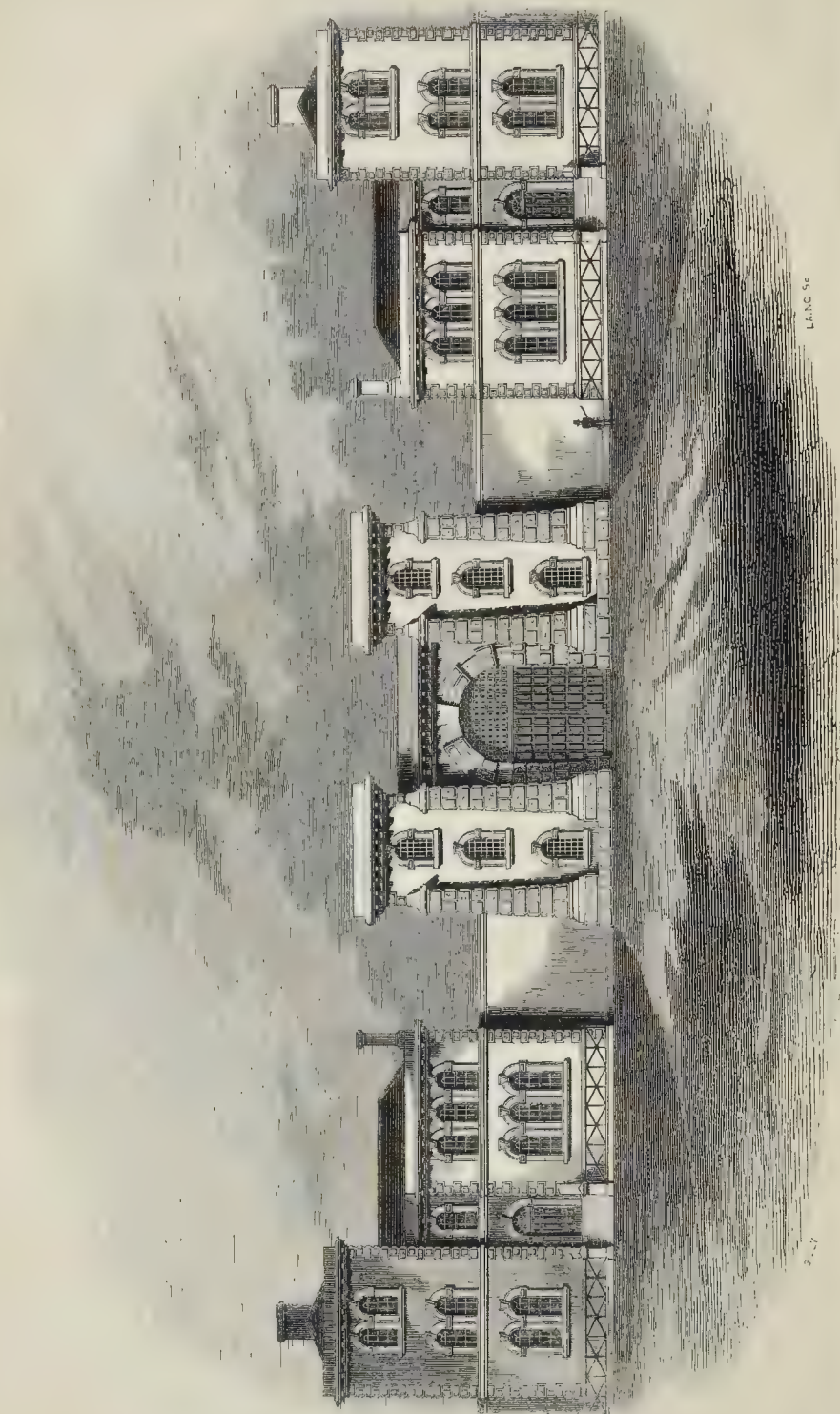
The basement contains—

**Males' Prison.**—Examining room, reception cells, receiving room, baths, fumigating closet, apparatus room, prisoners' own clothes store, clothing store, cleaning room, principal officers' mess room, warders' mess room, steward's stores, steward's office, store, bread room, potatoe store, cook's room, coal store, workshops, males' serving room, cooking kitchen, females' serving room, scullery, boiler room, bakehouse, can room, meat store, larder, baths, coal store, punishment cells, store-keeper's office, clerk of the work's office, prison stores, itch cells, dead house.

**Females' Prison.**—Examining room, reception cells, baths, prisoners' own clothes store, clothing store, fumigating closet, apparatus room, workshop or school room, store, serving room, kitchen, scullery, larder, coals, store, baths, punishment cells.

We shall next week give a section of the building and plan of the chapel, which will render our illustration complete.

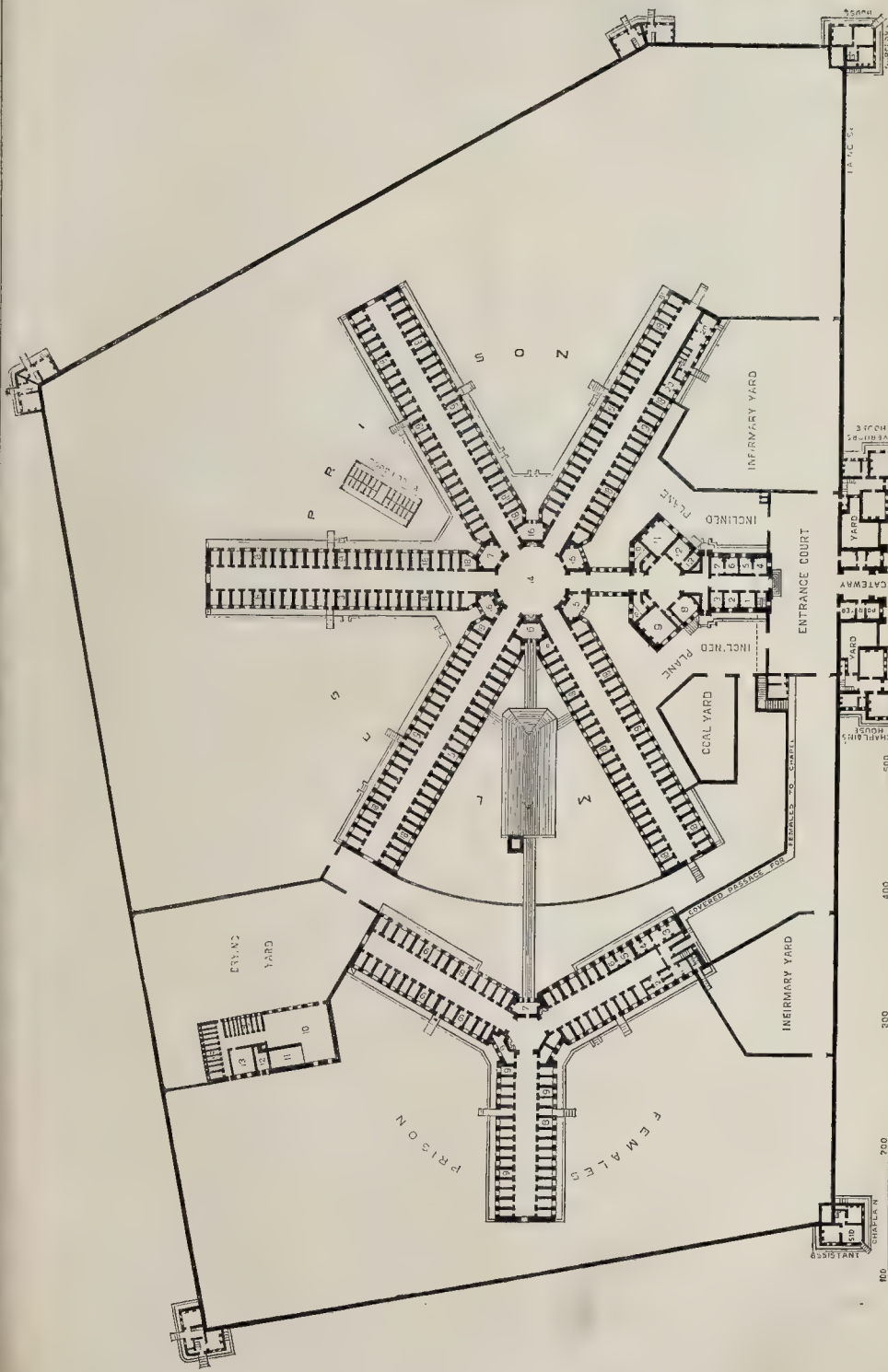




ENTRANCE GATEWAY, NEW SURREY COUNTY PRISON.—MR. D. HILL, ARCHITECT.

L.A.C. 5c





GROUND PLAN OF NEW SURREY COUNTY PRISON.



# CONSTRUCTION OF LOCKS AND KEYS. INSTITUTION OF CIVIL ENGINEERS.

On the 9th inst., a paper was read "On the Construction of Locks and Keys," by Mr. J. Chubb. The author commenced by stating, that the most ancient lock, of whose form and construction there was any certain knowledge, was the Egyptian, which had been in use for upwards of 4,000 years. The construction of this lock was minutely described, also that of the ancient "warded" and "letter" locks. The essential principle of the Egyptian lock was that of moveable pins, or studs, dropping into and securing the bolt, all of which must be raised to the proper height, by corresponding pins in the end of the key, before the bolt could be unfastened. This lock was the foundation upon which most of the ingenious inventions of late years had been based, differing only in the forms of the moveable obstructions to the bolt,—some of which acted vertically, others horizontally, some with a rotary motion, and many others in an endless variety of ways.

Calculations were gone into, to show the number of different combinations which might be made in Chubb's lock; and it appeared, that with an average sized key, having six steps, each capable of being reduced in height twenty times, the number of changes would be 86,400; that if the seventh step, which threw the bolt, was taken into account, the reduction of it only ten times would increase the number to 864,000. Further, that as the drill pins of the locks, and the pipes of the keys, might be made of three different sizes, the total number of changes would be 2,592,000. In keys of the smallest size, the total number would be 648,000, whilst in those of the largest size it would be increased to 7,776,000 changes.

In conclusion, it was stated, that the manufacture of locks and keys was principally carried on at Wolverhampton and the adjacent towns, Birmingham, and London.

On the 16th the discussion upon the paper occupied the whole evening, and the meeting expressed a strong conviction in favour of Chubb's lock.

## OPENING WORKS OF ART IN '51.

THE remarks in THE BUILDER recommending to Government the completion of some buildings and monuments now in progress, are well worthy of their serious regard; but in addition to the acceleration of such works which are open only at fitful intervals to the public, allow me to suggest to the conservators of national property that our great public buildings—such as the whole range of the Houses of Parliament, the metropolitan cathedrals, the museums generally, Tower, palaces, gardens (Zoological and others), together with institutes of all kinds, should be unreservedly and gratuitously opened on this grand occasion, so that one glorious saturnalia of science might evidence to the world the advance of arts and the unthought wealth of this great country.

Of what use is the gem which glitters in the cabinet of the virtuoso, or the precious relic which sleeps in the drawer of the antiquary? None whatever. Yet in much the same condition have our great public repositories of art been buried up to this day, so far as the populace are concerned,—at least such portion of the denizens of our metropolis as could not pay 1s. 6d. for the tower, 6d. for St. Paul's and the Abbey, and so on *seriatim*. This is truly the disgrace of England, as well as the cause of ignorance amongst the multitude, coupled with a want of respect, if not of admiration, for the masterpieces of taste, whenever they are admitted to a view.

As you observe, on the first admission of John Bull's family to the gardens, some slight damages were done to shrubs and flowers—till acquaintance with their value taught even the "snob" to appreciate and respect beauty in nature: familiarization with beauty in art would follow as essentially, and the result be the same. No act of the excellent Prince to whom is due the origination of the coming National Exhibition, can more illustrate his fame, or more endear him to the country, than the study to which he has devoted his fine intellect, namely, to connect the name of England and the annals of his era with supereminence in art.

The eulogium of an ancient historian (Quintus Curtius), on the character of Philip of Macedon, seems to me to be apposite to the merits of Prince Albert, in the instance of the approaching exhibition, and to have escaped notice, for in that early and rude age the consequences of an aggregation of arts and manufactures are there demonstrated. In the present epoch of philosophic research, and perfection in mechanism, what may not be anticipated! Let England, then, the mistress in arts, be the foremost in munificence: let her open her repositories of hoarded wonders to convince the stranger of her supremacy, and to assure her own native children of toil that the issues of their industry are existent and indestructible, although long concealed from the artificer.

QUONDAM.

## AID TO INVENTORS.

YOUR correspondent, "An Inventor of Ways without Means," in pointing out that persons so situated are unable to protect their inventions by patents prior to exhibition in 1851, has, I think, somewhat exaggerated the difficulty. Doubtless some mode of securing the benefit of a successful invention, less expensive than a patent (at the present price), and more effective than registration, is highly desirable. Still, in this country there is no want of enterprising moneyed men ready to join in or to defray the entire expense of patent right for a share of the profit attendant on every really good and useful invention. The person most likely to do so is the employer of the inventor, supposing the invention to have reference to the particular manufacture in which both are interested.

The want of means more seriously affects those who have, or who imagine they have, the ways, when they require capital to assist them to complete models or machines for exhibition. To obviate this difficulty the Bolton Committee of the Great Industrial Exhibition, at a recent meeting, commenced a separate subscription, to provide a local fund, to be called "the Operative Fund," for the assistance of operatives and artisans in maturing and perfecting any inventions, manufactures, machines, models, or improvements, which they may wish their own funds be unable to complete for the exhibition. Contributions, amounting to 50*l.*, were volunteered at the meeting by parties who had in every case previously subscribed to the general fund, and the committee have already had applications for aid.

The same committee have also resolved, "That the local commissioner and the honorary secretary be appointed a committee of secrecy, to receive communications relative to objects for exhibition, which they may be desired not to make public before the time of exhibition," to obviate the objection there is to communicate the information, as to objects likely to be exhibited, sought by the commissioners.

G. J. F.

## BRITISH ARCHEOLOGICAL ASSOCIATION.

At a meeting on the 10th, Mr. Pettigrew, V.P., in the chair, exhibitions were made by Mr. Redfern; Mr. Edwards; Mr. Gould, F.S.A.; Mr. Milner, F.S.A. (of a drawing of the sculptures on the font of Kirkbrun, near Driffield: the upper series relates to baptism and other Christian subjects, but the lower one appears to be an illustration of some ancient romance: Dr. Bell suggested that it related to the tale of Reynard the Fox); Messrs. Lawes (of some tiles found while excavating beneath their house, situate about 50 feet south of the Barber Surgeons' Hall, London: these may have belonged to the chapel of St. James, which formerly stood near the north end of this street); Mr. D. Falcke; and Mr. Charles Ainslie (of a large number of arms, consisting principally of daggers and arrow-heads, found in the Thames while digging the foundations of the Houses of Parliament).

Mr. Pettigrew produced a MSS. volume, containing a series of warrants with the sign manual of Charles II., and countersigned by the celebrated secretary, Samuel Pepys, directed to Captain Faseby, the commander of the king's yachts, *Cleveland* and *Charles*, from the year 1673 to 1678.

Dr. Bell read a paper on the contents of a parchment roll, 31½ feet long by 12 inches broad, which, from a collation with the fragments published by Hearne (Oxon, 1719), he pronounced to be an entire MS. of Thomas Sprott's Chronicle (who lived about 1276), and probably unique: no perfect copy exists in the Cottonian or Harleian collections, nor is another known to those well versed in our ancient annals. Enlarged drawings of some of the illuminations were exhibited; and from the cross-legged figure of Brute, Dr. Bell proceeded to give some new views concerning this peculiar position of our monumental effigies, illustrating the subject by some curious legal customs observed of old in Germany. Mr. Planché, F.S.A., made some remarks showing the great importance and curiosity of this subject.

The meeting concluded by the reading of a report from Mr. Pretty, of Northampton, relating to the excavations now in progress at the Roman villa near Towcester, which was illustrated by a drawing of one of the pavements.

## PRESERVATION OF OAK FENCING.

IN reply to the inquiry for the best method to preserve oak fencing from the weather,—I have had much experience, and have for years watched the effect of the atmosphere upon these wooden fences, and in all cases have found that the wood itself, without any paint or dressing whatsoever, is the most durable. With respect to oak fencing, we must all have witnessed and seen many instances of old grey park fences that had existed, with their beautiful old crops of lichen, from time immemorial, and conveying a feeling of warmth and verdure to the mind much more pleasurable than any painted fence whatsoever. I erected a fence of thin yellow deal feather-edge boards, six from the 3-inch deal, and when removed, after seventeen years, there was no appearance of decay at all: with respect to oak, which is of a gummy sap, it will often be found that, when put up new and tarred or painted, a fungus will vegetate through the dressing, and the interior of the wood be rapidly destroyed; but when undressed it seems that the weather desiccates the gum or sap, and leaves only the woody fibre, and I am firmly of opinion that an oak fence undressed is the most durable, even by years. I may add, that white rosin and tallow is a very good dressing for an oak fence: it must be applied hot, and laid smooth by a *brazier*, in the same way as boats' bottoms are dressed.—E. V. GARDNER.

Another correspondent advises the use of a paint made with strong varnish bottoms, coloured any shade. We agree with E. V. G.

## ASPHALTED ROADS IN PARIS.

In Paris, where the importance of good roads is universally appreciated, a new experiment has just been tried by the Perimont Seyssel Company: it is an improvement upon the system of Asphaltic causeways. The discovery of which we speak, consists in the application in its cold state without melting it, of the Asphaltic extracted from the mines of Seyssel. The system is simple. The Asphaltic rock is broken roughly into pieces about the size of a walnut, then it is lightly dipped in mineral tar oil, which renders it glutinous. In this state it is carried to the spot: a workman spreads it, and piles it down: it is then ready for circulation, carriages pass over it, when it becomes instantly an elastic and soft pavement, resembling a thick piece of leather spread upon a hard soil.

*La Patrie* says, one of the sidings of the Champs Elysées, the right hand side one, has been paved after this process, and everybody has been able to appreciate its advantages, and the ease of traction over it: in fact, since it was laid down, the left side has been every day more and more abandoned. This part of the way, which was done more than six months ago, has kept remarkably well considering the great change of temperature; and, in spite of the increase of traffic over it, when compared to the left side, the cost of keeping it in repair has been considerably less. "The question now is (continues the journal we quote), whether these causeways can successfully re-



place the common stones now in use; it seems to us they offer many important advantages over them. First of all, absence of noise, great facility of traction, and economy in the wear and tear of carriages and horses. Also a great improvement for the salubrity of the city, on account of the imperviousness of Asphalt, which prevents water from infiltrating, and facilitates its going off. Finally, there is a consideration which is highly interesting, that is, in a certain length of time it will cut short barricade-making with the stones taken up from the ground."

### Miscellanea.

**EXETER DIOCESAN ARCHITECTURAL SOCIETY.—PLYMOUTH BRANCH.**—A meeting of the above was held at Plymouth, on the 9th inst. Mr. Llewellynn Jewitt read a paper "On Encaustic Paving Tiles," in which, after a few introductory remarks, he said—The decorations and appliances of our early and mediæval ecclesiastical buildings are of the greatest importance and value to the architect, and to the archaeologist. The gurgoyles of a church will frequently lead our minds to the fables and miracles and superstitions of our mediæval forefathers. The tombs and the brasses show us the costume and personal decorations of the periods in which they were erected; the stained glass of the windows gives us an insight into the state of the arts of the period; the oak seats, with their quaintly carved figures, illustrate the popular literature of the age; and the tiles of the pavement possess no small share of interest, from their exhibiting to us examples of costume, armorial insignia, and inscriptions of the highest importance. Ornamental tiles were formerly much used for paving the floors of sacred edifices. The earliest known specimens appear to be of the latter part of the twelfth, or the beginning of the thirteenth century,—many of these exhibiting the beautiful Early English foliage of the period. Of these, the examples from Castle Acre, preserved in the British Museum, are perhaps the most ancient.

**THE ALP TUNNEL.**—Its northern entrance is to be at Modane, the southern at Bardonnèche, on the Mardovine. The latter entrance, being the highest point of the line, will be 4,092 feet above the level of the sea, and yet 2,400 feet below the culminating point of the great pass, over Mont Cenis. The connecting lines leading to either entrance of the tunnel will be eight inclined planes of about 5,000 metres, or 2½ English miles each, worked like those at Liège, by endless cables and stationary engines, but moved by water power from the torrents. The tunnel itself will measure 12,290 metres, or nearly 7 English miles in length: its greatest height will be 19 feet, and its width 25. A most remarkable part of the project is the newly devised machinery and motive power by which the Chevalier Maus proposes to bore it. This machinery is said to be as ingenious as it is new, presenting, as a correspondent of the *Times* states, some extraordinary facts in mechanics which could hardly have been anticipated. In comparison with such a gigantic undertaking as this, the Thames Tunnel and the Britannia Bridge become secondary objects. An application for funds to begin with will be made to the Piedmontese Parliament forthwith, and the work, which it is expected will occupy five years, will cost 14,000,000*fr.*; while the entire railway of the Alps, connecting the tunnel with the Chambray Railway on the one side and with that of Susa on the other side (in length together 35,565 metres, or 20½ English miles), will cost 21,000,000*fr.* more, forming a total expense of 35,000,000*fr.*

**MAHOGANY BLOCKS.**—Last week a piece of mahogany, forming one of three blocks from a single tree, imported from Honduras, was drawn through the streets of Manchester by ten horses. It measured 20 feet in length, 5 feet 3½ inches in depth, and 4 feet in thickness: contents, 5,609 cubic feet: weight, 112 tons and upwards. The tree itself stood 72 feet in height of trunk and clear of branches. It was felled 12 feet from the ground (in case of unsoundness beneath), and the part felled was 9 feet in diameter, and contained 73,000 cubic feet of timber. Messrs. Kearsley, of Manchester, purchased their block at 1*s.* 10½*d.* per foot.

**AMOUNT OF THE LIVERPOOL WINDOW DUTY, &c.**—From a return issued on Saturday week, to an order of the House of Commons obtained by Mr. G. Pechell, dated 28th February, 1850, it appears that the amount of window duty assessed, and the net amount received, with the number of houses charged, for the year ending the 5th day of April, 1849, were as follow: namely, amount assessed, 1,893,988*l.*; net amount received, 1,813,629*l.*; houses charged, 487,411. The return further shows similar amounts for the same period for the twelve provincial towns in England paying the largest amount, namely:—

	Amount Assessed.	Net received.	Houses charged.
Bath .....	21,893	21,278	3,722
Birmingham .....	16,161	14,986	5,432
Brighton .....	18,025	17,572	3,613
Bristol .....	14,675	13,280	4,350
Cheltenham .....	6,998	6,767	1,407
Clifton .....	9,429	8,896	1,373
Leeds .....	7,978	7,596	2,479
Liverpool .....	32,461	28,856	11,342
Manchester .....	21,925	20,575	7,751
Norwich .....	6,627	6,465	1,871
Newcastle-on-Tyne .....	8,320	7,822	2,854
Plymouth .....	12,207	11,929	4,527

**ELECTRIC ALARM.**—An invention, attributed to Mr. Woodhouse, of Brighton, but apparently suggested by one described some time since in *THE BUILDER* by Mr. Petrie, has been exhibited at Mr. Whishaw's telegraph office, Adelphi. By aid of clock-work an alarm is set in motion by a magnet so soon as the electric circuit is completed by the opening of a window or a door to even the smallest extent. In cases of fire, also, as well as of theft, the alarm is rung,—in the former case, by the rise of the mercury to a certain point, in thermometers properly placed, completing the electric circuit. Since's battery, in two small bottles about 4 inches high, and said to retain sufficient power for six months without interference, is the galvanic apparatus used. A dial points out the whereabouts and the nature of the danger.

**DRAINAGE OF THE METROPOLIS.**—In reply to questions put by Sir B. Hall, in the Commons, on 12th inst., Lord Ebrington, on the part of the Sewers Commission, said, that the question of the drainage and outfall of the metropolis was not one quite so easy or simple as some gentlemen seemed to imagine. As soon as the principle was determined and the necessary works agreed upon, the public would have due notice. The commissioners would have to levy rates for the execution of the works; but it was impossible to say what amount would be necessary. There was, however, no prospect of the expense falling with a very heavy pressure on the ratepayers at once, because there was a power in the Act of distributing the charge incurred over a series of years. Sir B. Hall then asked the Home Secretary when the report from the Board of Health would be presented, in order that a time might be fixed for the second reading of Bills for affording a better supply of water to the metropolis. Sir G. Grey said that the report, he thought, would be laid on the table in about three weeks.

**ARCHAEOLOGICAL COLLECTION FOR CAMBRIDGE.**—Mr. Disney has offered to the university a valuable collection of ancient marbles and statuary, to be placed, under his name, in one of its public buildings.

**CHRIST CHURCH, KENSINGTON.** — "To be, or not to be."—Through the medium of your journal, stir up, I beseech you, the building committee of this long talked-of new church; for here have I been these three years a pious Kensingtonian, a pious Sabbath wanderer, obliged, Sunday after Sunday, to roam from church to church, ay, and oftentimes from chapel to chapel, to hear the word of God. Now, as long as eighteen months ago I was induced, at the urgent request of the aforesaid, to cash up my subscription, since which time some of my friends have called me Green Peter, as no building evidence has been produced; however, *cetera n'importe*, for I can assure this mesmeric body, that as soon as I have an outward and visible sign of bricks and mortar, I am (as I feel sure many others are), ready to give a second donation.

PETER FEWLESS.

### THE WINDOW-TAX AND LODGING-HOUSES.

—The window-tax, as at present regulated, falls particularly heavy on model lodging-houses. A house having less than eight windows is exempted from duty; a house having eight windows pays nearly 2*s.* 1*d.* for each window; beyond that number not only is each window chargeable, but the rate of tax per window increases with the number: thus a model lodging-house having 100 windows would be charged 29*l.* 8*s.* 6*d.*, that is, at the rate of no less than 5*s.* 10*d.* per window. The immense produce of the window-tax is the objection to its repeal; but in the spirit of the Act itself, lodging-houses on a large scale for the labouring classes, should be exempted from duty: distinct chambers in the inns of court are so, so are those in universities and in public hospitals, as also houses divided into different tenements, being distinct properties. It has been said that apartments opening from external galleries would be considered as separate tenements; but though they be distinct tenements, they would not be distinct properties, consequently they would be liable to the tax: so also participation in the general use of a kitchen, coffee-room, reading or work-room, would subject the whole structure to the tax. Even if the window-tax generally cannot yet be got rid off, might not the Legislature be induced to place lodging-houses for the labouring classes on the same footing with inns of court and universities? Might not some such arrangement be contrived as that no separate lodging, having only seven windows, should be chargeable? As to reading-rooms, kitchens, &c., it might be hoped that to favour sanitary and moral improvement in the working part of the population, those appendages might be exempted as conducive to good order.—M. B.

**PRESERVATION OF OUR NATIONAL ANTIQUITIES.**—A correspondent, who writes relative to the destruction at St. Bartholomew's, Smithfield, and with the object of pointing out that the chief damage was done by a fire in 1830, says,—In excavating for the purpose of lowering the ground, one large and two or three small bosses were found in a tolerable state of preservation, and these were seen by many persons who felt interested in the matter,—but, from the want of some national and public receptacle for them, they were not presented to the people, but were parted with for the purpose (it was understood) of being added to the City Museum of Antiquities; but whether so or not, they are decidedly safer in the hands of the gentleman who valued them enough to buy them than they would have been in the builder's yard. \* \* \* \*

I have to add, that one bay of the cloister has happily escaped the general destruction, and is walled up. It has not been seen for years, and is, no doubt, nearly as perfect now as, by what I hear, it then was. Were there any public society to take these matters in hand, the owners of the property would, I feel assured, offer no obstacle to its being laid open for examination; but at present the walling-up protects it from damage, and is its best protection.—W. CHRISTIE.

**COST OF MARYLEBONE BATHS.**—At the vestry meeting on Saturday, Mr. Broughton moved that the commissioners of baths and washhouses should be empowered to raise 7,000*l.* to complete the buildings. The sum actually required was 8,235*l.*, but it was expected that the establishment would pay the difference. The original estimate was 10,000*l.*, and it was now ascertained that the structure could not be completed for less than 25,000*l.* Part of the excess in expenditure was said to be caused by a failure of the foundations. Some members charged the commissioners with reckless extravagance, and threw reflections on the architect, which were indignantly repelled by his friends.

**STEALING DESIGNS.**—Inigo Jones has been before the magistrates in Birmingham, where he lives just now (and makes table covers), with an information against Davenport and Hendren, similar manufacturers, for pirating the ornamentation of a cover. It consisted of vine leaves and grapes, and D. and H. said sapiently, these had been used hundreds of years before Inigo flourished. Their witnesses could not show, however, that they had ever seen them arranged as in the registered pattern in question, and the magistrates fined the copyists 10*l.* and costs.



**ART-UNION OF GLASGOW.**—At the annual meeting held on Friday last, the Lord Provost in the chair in place of the Duke of Hamilton who was unable to attend, the report was read, from which it appears that the income for the past year was 1,581*l.* odds, of which 721*l.* had been expended in the purchase of works of art. The committee proposed for the next year, as an encouragement to art, to offer a premium of 50*l.* for the best original historical or landscape painting.

**THE RHEIN BRIDGE AT COLOGNE.**—The Prussian Minister of Trade and Public Works has issued a public notice, inviting engineers of all nations to send in plans of a fixed bridge at Cologne, to unite the lines of railway between Belgium and France with the great German line to Vienna. The river from bank to bank, 1,275 feet wide, must be crossed by a bridge leaving three openings; the piers to occupy in all not more than 75 feet, and so firmly built as to stand the pressure of ice on the break-up of great frosts. Locomotives will not pass, nor unbroken trains. The cost is not to exceed 1,500,000 thalers. The best plan will receive a prize of 250 fredericks d'or; the second best, 125. The plans must be sent in by August next.

**LEINSTER GRAND JURY v. IRISH BOARD OF WORKS.**—In a case of alleged extravagance on the part of the Board of Works in Ireland, in their expenditure of a sum of 904*l.* odds, on the building and repairing of bridges, a jury was empanelled, and the evidence of Mr. Crawford, the county surveyor, taken on the part of the grand jury. Among the items were 267*l.* odds, for a new bridge at Ballyfinboy, which the surveyor said was no better than others in the county, built for 7*l.* a foot, making the amount in all 140*l.* Another item was 234*l.* odds, for a bridge of 25 feet span of arch at Ballyhooney, which the surveyor stated that respectable contractors would be found to construct for 175*l.* Mr. M. Farrell, the Board's inspector, supported the charges made; but the jury decided, on Mr. Crawford's evidence, to reduce the amount to 529*l.* in all, inclusive of interest on money borrowed.

**ECCLIOLOGICAL LATE CAMBRIDGE CAMDEN SOCIETY.**—A committee meeting was held on the 9th; the President in the chair. Amongst other matters, Mr. Carpenter attended and consulted the committee on the restoration of the round church of Little Maplestead, the drawings of which he exhibited. It was agreed to issue notices, appointing the anniversary meeting for 1850, on Thursday, May 16, at two o'clock p.m., in the school-room of Christ Church, St. Pancras, in Albany-street, Regent's-park. A letter was read from the Rev. Dr. Garstin, of Galle, in Ceylon, asking for advice as to a church intended to be built at that place. An account was received of a satisfactory restoration at Morley church in Derbyshire; but the committee were unable to make a grant in its aid. The controversy in *THE BUILDER*, between Mr. Pugin, Mr. Fergusson, and others, and the suggested removal of the railing round the western area before St. Paul's, were discussed.

**SOMERSETSHIRE ARCHÆOLOGICAL SOCIETY.**—The quarterly meeting of this society was held on Wednesday in last week, at Bridgewater. The chair was taken by Lord Cavan, and after a few preliminary introductory remarks, Mr. William Stradling, of Chilton Polden, read a paper on the antiquities discovered from time to time in the peat, large tracts of which surrounded this neighbourhood. The Rev. Mr. Wall read a paper on "Ancient Church Architecture," and Mr. Charles Giles, one of the honorary secretaries, followed with a short dissertation on the same subject, including a description of Bawdrip Church. The members afterwards visited Bridgewater parish church, now undergoing restoration under Mr. W. Breakspear, architect.

**DWELLINGS FOR THE POOR IN FRANCE.**—An application has been made to the Society for Improving the Condition of the Labouring Classes by Messrs. Gide and Baudry, the publishers, of Paris, for permission to use the illustrative engravings which accompany the Essay, just published by the society, "On the Dwellings of the Labouring Classes," by Mr. Roberts. The fact is interesting, as showing that this subject now engages public attention in France.

**PROJECTED WORKS.**—Advertisements have been issued for tenders, by 26th April, for the erection of a villa residence at East Moulsey; by 9th May, for the erection of a training and middle school at Salford, near Birmingham; by 30th inst., for a supply of baths to complete the St. Marylebone public establishment; by 2nd May, for renewing a river wall at Tilbury Fort; by a date not specified, for the erection of about 60 rods of best red oak paling near London; by 30th inst., for various works connected with the building trades for the Ordnance, as advertised; by 30th inst., for the supply of paving, granite, flint, Kentish rag, and gravel; by 23rd inst., for the erection of offices and a board-room, &c., for the Consumers' Protective Gas Company at Woolwich; by 30th inst., for the erection of a rectory-house, with offices, &c., at Blendworth, Hampshire; by 3rd May, for altering a house at Hilton, near Saint Ives, also for altering and rebuilding at a farm-house there, and for new stabling and offices to a house in same vicinity; by 30th inst., for laying down York paving-granite curb and granite channeling, and supplying broken granite, rag, &c., for St. Pancras parish; by 27th inst., for removing an engine-shed and water-tank from Richmond to Richmond station of the London and South-Western Railway; by a date not specified, for building school and class-rooms at the Royal Naval School, Newcross, Deptford; by 16th May, for making, fixing, &c., a steam-engine, with engineer's house and coal-yard, &c. (as advertised), for the Hollow District Commissioners, Ramsey; by 1st May, for works at sea defences of Southsea Castle, Portsmouth (Ordnance); by 25th inst., for erecting a villa near Keighley; by 22nd inst., for the erection of a school, &c., at King's Norton Union Workhouse; by 22nd for erecting a school at Carlisle; by 26th, for the excavation and formation of a stone reservoir at Barrow, for the Bristol Waterworks Company; by 1st May, for the erection of a building on the Walsworth Villa estate, Walsworth Common, for the infant poor of St. Mary, Newington, Surrey; by 25th inst., for ironwork for new gaol at Walton, Liverpool; and by 24th, for a new set of oil lamps (with appropriate designs) for the hall of the Middle Temple; also by a date not specified, for supplying Copenhagen, Denmark, with water, gas, and sewers, with plans for same.

**COMPETITION.**—Plans for a proper supply of water for Aylesbury are wanted by the local Board of Health: premium 20*l.*, as advertised.

**CHURCH GALLERIES.**—The peculiarity of the Gothic style, as distinguished from the classical, appears to be the facility with which it accommodates itself to the requirements of different times and different sections of the church. Keeping this in mind, I would ask any sensible man whether the exclusion of galleries in places of worship (where any pretension to architectural propriety is made) is not in opposition to the genuine spirit of the Gothic style? Why will not the architect rescue the gallery from the hand of the carpenter? It must be built, where convenience is not unduly sacrificed to appearance, and why might it not be made ornamental (as well as more convenient) by springing from the wall supported by spandrels, and by being just of a size to do without pillars? Galleries at present are not only great eyesores, but by being built too large, and by inclining the wrong way to the wall, are great obstacles to proper ventilation.—E. J. C.

**BRICK DUTIES BILL.**—We understand that, through representation to Sir John Jervis, from Chester, a clause will be introduced into the Brick Duties Exemption Bill, so that brick-makers who have taken contracts for making bricks previous to the duty being taken off, will have to deduct the amount of duty from their contracts.

**PUBLIC WATER CORNERS.**—The surveyor of the city sewers has published a report on the public urinals in the city. There are seventy-four there, it appears. This report should have the useful effect of drawing attention to a subject of great importance, which has little chance of public advocacy because of its nature.

**LIGHTING EAST-INDIA-ROAD, POPLAR.**—Correspondents complain bitterly of the state of darkness in which this road is kept.

**NATIONAL GALLERY.**—In answer to a question put by Mr. Hume, in the Commons, Lord John Russell has announced, definitively, that "the Royal Academicians would be obliged to find suitable accommodation for themselves out of the National Gallery, and the Vernon pictures would ultimately be placed in that building."

MR. PATRIC PARK has nearly completed the model of a national group, consisting of a colossal statue of Wallace, the left hand holding the mane of the lion of Scotland crouching at his feet, but ready to rush forth at his command, and the right leaning on his historic sword, the terror of his country's oppressors. It is intended to be erected in Edinburgh as a public monument.

**INAUGURATION OF BELFAST SCHOOL OF DESIGN.**—On 10th instant, a very numerous and influential meeting was held at the School of Design, at Belfast, when Lord Dufferin, who was in the chair, delivered an eloquent speech, in which he announced his intention to found a scholarship of the value of 20*l.* Mr. R. B. Houston followed the example, and stated his intention to found one of 10*l.* The meeting was also addressed at some length by Mr. Nursey, the head-master of the School, and by the mayor, and other gentlemen.

**"ARCHITECTURAL ILLUSTRATIONS OF THE SPIRES AND TOWERS OF GREAT BRITAIN."**—We have been asked to state, and do so with pleasure, that the drawings, by Mr. Wickes, exhibited at the last meeting of the Institute of Architects, are about to be published, and that the work is already in progress.

**IMPROVEMENT OF ST. PAUL'S CHURCH-YARD.**—We understand that the dean and chapter have had a meeting on the subject of the proposed improvement of the carriage-way; and we believe it now rests with Mr. Cockerell to report to the chapter, when an appointment will be made to receive a deputation upon the subject.

**BRECON LUNATIC ASYLUM.**—Sir: A recent report on the progress of this building from Messrs. Fulljames and Walker has led us to the inference that they are the *builders* as well as architects. Can any of your correspondents set me right? W. D. W.

#### TENDERS

For a Cattle Market, Chester. The work comprises the boundary walls and ornamental entrance gates, the wood and iron fencing of the cattle stalls and pens, the iron fencing of the sheep and pig pens, the paving and drainages, pig sties, boiler-house, liquid manure tank, hand pipes for cleaning the markets, &c. &c.: Mr. Baylis, Borough Engineer.

Cline, Shrewsbury .....	£2,210	0	0
Lockwood, Wrexham .....	1,285	0	0
Stevenson and Co., Chester ..	1,798	0	0
Gray and Co., Chester .....	1,690	0	0
W. Clifton, Chester (accepted) ..	1,675	0	0
F. Jones, Manchester .....	1,824	0	0

For revaluations at No. 4, Coventry-street: Mr. E. H. Browne, Architect. Quantities furnished.

Hawke .....	£1,148	0	0
Glenn .....	1,087	0	0
Rogers .....	1,087	0	0
Sutton .....	1,049	0	0
P'Anson .....	1,016	0	0
Pink .....	1,044	0	0
Grimdell .....	993	0	0
Helling .....	988	0	0
Reynolds .....	978	0	0

For additions to Norwood Schools for the City of London Union.

Hill and Son .....	£1,025	0	0
Taylor .....	950	0	0
Perry .....	919	0	0
Cooper .....	947	0	0
Barrett .....	940	0	0
Burton .....	891	0	0
Hell .....	848	0	0
R. and E. Curtis .....	784	0	0
Heard (accepted) .....	793	0	0
Walker and Soper .....	720	0	0

Delivered at Mr. Wagstaff's office, for works to three shop-fronts in Holloway-road.

King and Co. ....	£514	0	0
Jarvis and Co. ....	425	0	0
Perry .....	419	0	0
Salter .....	399	0	0
Watson .....	388	0	0
Rugg .....	372	0	0
Clarebrough .....	365	0	0
Haines .....	349	0	0
Lawrence and Son .....	333	0	0
Walbatton .....	320	0	0
East .....	317	0	0
Hill and Son .....	284	0	0

[We have given up endeavouring to reconcile these differences.]

#### MEETINGS OF SCIENTIFIC BODIES

To be held during the ensuing week.

MONDAY, April 22.—Institute of British Architects, 8 p.m.  
TUESDAY, April 23.—Institution of Civil Engineers, 8 p.m.; Society of Antiquaries, 2 p.m. (anniversary).  
WEDNESDAY, April 24.—Society of Arts, 8 p.m.; British Archaeological Association, 8 p.m.

THURSDAY, April 25.—Royal Society, 8 p.m.



Any declining standards, will be pleased to forward their names to the Secretary, Mr. A. G. HARRIS, at the Office, 476, New Oxford-street, Bloomsbury.







# The Builder.

No. CCCLXXVII.

SATURDAY, APRIL 27, 1850.

**T**HERE are two or three matters that we find it necessary to mention, and as we have left ourselves little space, we must throw them together with more regard to brevity and the information of our readers than connection of the subjects. And touching this same brevity, we would urge upon some of our correspondents its great virtue and importance. The subject which occupies a writer's own mind is usually particularly interesting to him, and he would not much object if our number for that week contained nothing else. Our readers generally, however, would think very differently, and we must of course consider them. Above all things we say to our correspondents, be brief: give us facts, argument, illustrations, tersely,—but avoid verbiage and long stories, which interest only yourselves. Another thing to be noted is, that there is no occasion to abuse a man because he has the misfortune to think differently from you,—he is not necessarily an infidel or a swindler, and it is quite possible that you may change your own opinion before you die, and remain just as honest a man as you are now. A number of letters in connection with the interesting and important controversy now going on in our pages were inadmissible on this account. The question is artistic, not personal, and in no other way can it be discussed in *THE BUILDER*. There is bad feeling enough in the world without opening fresh sources unnecessarily.

In some cases personal reflections cannot be avoided; but even then they should be tempered by consideration and charity. And now for a case somewhat in point.

In our notice of the competition designs for baths and washhouses at Greenwich,\* we expressed two opinions;—first, that we did not suppose the selected design could be carried out for the sum stipulated, viz., 5,000*l.*; and, secondly, that a set marked *Pro Bono Publico* was well arranged, and had a satisfactory aspect of completeness. We further mentioned that Mr. W. Smith, of Greenwich, had been employed professionally to assist in the selection.

Since then the referee has forwarded to us a copy of his report and the correspondence on the subject, in order that we might refute certain "unfounded reports that are being industriously circulated relative to his selection of the design for the proposed building."

It appears, although we were not aware of it at the time, that he, in his report, pointed out the set marked *Pro Bono Publico* (in red ink) as the only one he could recommend in which the instructions had been complied with. The report said the set marked "Junius" and another set marked *Pro Bono Publico*† (in black ink) had points of greater merit than the first named, but as their stated cost exceeded the stipulated sum, he did not

consider himself justified in recommending either of them for adoption.\*

The commissioners, however, selected the set marked "Junius," found to be by Mr. Ritchie. To refute an imputation of personal connection with the author of the plans the referee had recommended, he advertised in our journal for the name of the author, and found the design was the production of Messrs. F. and H. Francis.

It is scarcely necessary for us to say that the course he took of rejecting those designs which were not prepared in accordance with the instructions, was the only one he could adopt with justice. Whether or not the selected set cannot after all be executed for the money,—whether or not the design pointed out by him could, we need not now inquire: the correctness of the principle is unquestionable.

We are glad to find that the Architectural Institute for Scotland (see advertisement), to which we alluded a short time ago, is now in shape. We cordially wish it success. We understand that it has been formed on a popular basis, the architects of Edinburgh not being sufficiently united at this moment, if numerous enough, to establish such an institution, and it will now be the duty of the council to consider how a professional status is to be conferred, compatibly with the popular constitution of the Institute.

The subjects which are intended to fall under the consideration of the Institute embrace "everything pertaining to the history, principles, and practice of architecture; as, for example, its rise and development in ancient and mediæval times,—the facilities presented by the architecture of these times for re-combination and modern adaptation,—the exposition and illustration of the æsthetical laws which govern architecture as a fine art, and of the mechanical laws which govern it as a constructive art,—and its various resources and appliances as a branch of social economics."

The Institute will carry out its object by meetings for the reading of papers and discussion on subjects connected with architecture, by corresponding with architects and men of science at home and abroad, and by the publication of its proceedings. It will also have in view the collection of models and designs; the establishment of a library, reading-room, and museum; the endowment of a chair of architecture; and the encouragement of pupils of merit at the various Scottish schools of art.

About one-half of the architects in Edinburgh have already become members of the Institute.

Some of the leading architects maintain at present an apathetic neutrality. It is to be hoped, however, that when they see the success which has attended the Institute in other quarters, and the zeal which is thus indicated as existing among the non-professional classes for the advancement of the study of architecture and the elevation of the status of the profession itself in Scotland, they will yet give the benefit of their names and of their experience, and merge all professional jealousies and dislikes in the desire to promote the noble art which they profess.

We hear that the first donation to the library of the Scotch Institute was a complete set of "*THE BUILDER*." We shall take upon

\* According to the instructions issued to architects, "the cost for executing the several works required for the whole establishment and fittings complete, in accordance with the designs, is limited to 5,000*l.*, including the architect's commission, his travelling expenses, and all incidental charges; and each person sending in designs is to be prepared (if called upon) to provide competent persons to contract for and execute the whole of such works in an efficient manner for the sum or sums to be stated in his specification or estimate."

ourselves to add to this by presenting weekly the current number of our journal.

*Apròpos* of the encouragement of pupils, the letter of "C. J. N.," in our last number but one, has not satisfied our pupil friends. "T. and C." have forwarded a reply, in which they refuse to admit "that the circumstance of its not being usual for architects to instruct their pupils is a sufficient reason for retaining the custom. That neglect on the part of masters," they say, "is the 'abominable system' which we call upon you to assist in abolishing. With respect to 'the contracting of bad habits,' it is doubtful whether the fault be always on the pupil's side. If 'C. J. N.' has studied Locke as deeply as he would have us believe, he will know that 'labour for labour's sake is against nature.' When pupils are set to multiply drawings merely to occupy that time which might be so much more profitably employed, either in gaining practical knowledge, or in making themselves acquainted with the numerous beauties of the public buildings of this metropolis (a course of study so strongly recommended by our eminent professor at the academy), it will not be surprising if they become careless and indifferent, not to say disgusted."

"We quite agree with the quotation with which your correspondent concludes, that 'practice must settle the habit of doing;' this contains the pith of our letter, wherein we confessed our ignorance of, and complained of the want of opportunity of seeing, the practical part of our profession, and in which we endeavoured to show the uselessness of theory without the aid of practice. We will, in conclusion, ask 'C. J. N.' to take another dip into the 'Conduct of the Understanding,' when he will learn that 'those who have particular callings ought to understand them;' and that 'it is practice alone that brings the powers of the mind to perfection.'"

There is much truth in the complaints of architects' pupils, and at the same time great force in the sensible letter by "C. J. N." We most earnestly deprecate the Pecksiaffian practice pursued by some practitioners, and the thoughtlessness of others, which leads them not to give their pupils opportunities of improvement to which they are justly entitled. We must, nevertheless, urge on students the necessity of self exertion, and caution them against expecting too much. We may, perhaps, find an opportunity to return to the subject.

Through expecting too much, the workmen of the metropolis had nearly lost the advantage which we feel assured they will derive from the new "Building and Engineering Operatives' Association." The project, however, is now we believe safe, although in a more positively "benevolent" shape than was at first contemplated. A meeting was held at Exeter Hall on the 23rd, Mr. Cockerell, R.A., in the chair, when a plan was decided on, resolutions forming the society passed, and a committee appointed to carry them out.

Mr. Brunel, Sir Harry Chester, Mr. Donaldson, Mr. Baker, and others, moved the resolutions; Mr. W. Cubitt, M.P., accepted the office of treasurer, and several large subscriptions were announced.

Means of obtaining the details of the scheme will of course be speedily afforded, and should receive the serious attention of all our readers.

**LORD ROSSE'S SOIREE.**—Lord Rosse gave his first *soirée* to the Fellows of the Royal Society, and persons distinguished by knowledge or position, on Saturday evening, the 20th.

\* See page 164, ante.

† Why do competitors adopt mottoes so hackneyed that they no longer serve as distinctions?



# POSITION OF THE ROYAL ACADEMY. FOREIGN ACADEMIES OF ART.

Owing to the extensive influence exercised by the Royal Academy on the public taste, the question which has lately arisen relative to the continuance of the grant of a building, cannot but awaken a lively interest even on the part of those votaries of the fine arts who are unconnected with this national institution. It is as one of these that I offer a few remarks, bearing chiefly on the institutions of a similar nature on the continent, whose prosperous condition, founded on the support of their respective Governments, militates strongly in favour of the like system of patronage in this country. In Germany, France, and Italy, we find academies established in all the principal towns, under the immediate control and support of Government. Prussia, in addition to the Academy at Berlin, has that of Düsseldorf, the fame of which justly extends over all Europe, and which, besides other advantages, receives from the Crown the spacious accommodation which is afforded by the old palace. The Berlin Academy is not only provided with a suitable building, but is also maintained by Government, the expenses being, however, partly defrayed by the profits of the annual exhibition, and by a slight charge made for the tuition given to the pupils. The salary of the professors is handsome, amounting to 600 thalers, or about 80*l.*, which is equal to double that amount in England. Their appointments are permanent, and unaffected by any falling off in the number of the pupils, or other changes in the schools; and the instructions which they give comprise all the principal branches of art, including landscape, and what is termed *genre*, or subjects from familiar life; besides which, large prizes are awarded for the best productions of the pupils. In Paris, the "Académie des Beaux Arts" appears to be established on a still more liberal footing, the instructions being gratuitous, and delivered by the first professors in a handsome and appropriate building, whilst the most successful students in each of the four principal branches of art are rewarded by being maintained for a certain period, at the expense of Government, at Rome, where France can boast of another academy, organized for this purpose, under the direction of one of her most eminent artists.

In Austria the establishment of academies of the fine arts, under the auspices of the imperial crown, extends even to the subordinate towns of Venice and Milan, in both of which, especially in the latter, a large number of pupils are gratuitously instructed in the various branches of art by the most skilled professors; all that is necessary for their perfect instruction being most liberally provided. The minds of the youths here receive the additional training which is derived from the study of the works of the best ancient masters, assembled under the same roof as the elementary schools.

Owing to latent causes, perhaps connected with the present political and social condition of Italy, the academies of painting in that country have not realized the fruits which might be expected to result from the possession of such treasures of art. That these failures are not the necessary consequence of a position dependent on Government, is sufficiently proved by the glorious results which have attended the foundation of academies, under royal patronage, at Düsseldorf and Munich. Works of so elevated a character as those which have been produced by the modern historical schools of painting in Germany could emanate from no source which is not purified and ennobled by the tutelary guardianship of sovereign protection. Art, like every true offspring of genius, is aspiring in its nature, and requires the aid of a supreme hand to raise its votaries to the highest station. Pecuniary remuneration may be awarded to talent and industry by private individuals; and this kind of stimulus, it cannot be denied, prevails to a large extent in this country. But when the necessities of life have been provided for, that honorary distinction is aimed at whose tabernacle is raised under the fostering shadow of royalty. Nor does art require the prestige only which is derived from the crown: the ideas expand with the space which is allowed for the designs which they suggest, and the vast halls and extensive walls

of palaces present the most effectual means for promoting the grand and the sublime in each style of art.

Such considerations as these afford sound and substantial grounds why an academy should be established under royal patronage, on a comprehensive and generalizing principle. With regard to the appropriation of a building for the use of the Royal Academy, this advantage, conceded at the period of its foundation, may be considered rather as an act of munificence on the part of the sovereign than as founded on any legal claim. But should we on this account entertain misgivings as to the present right of possession, seek a flaw in the title, or admit it only with a frown? The first planning of an institution involves an amount of difficulty, and requires a degree of energy and confidence, which, when this first trial has been made, are not necessary for the successive establishment of others on a similar footing. If the unusual amount of enterprise which presided at the foundation of the Royal Academy merited especial encouragement and support, why should it lose, or even weaken these claims, by a long period of successful, and—I believe, generally admitted—as most usefulexercitions?

We cannot but suppose that the most talented and persevering members of other less important academies of the fine arts, would behold with regret any change with reference to the Royal Academy which might tend to lower its position: all must feel, more or less, that an institution is wanted at the head of the hierarchy of art, to which other more humble societies may serve to prepare the way by successive and graduated stages. If no distinction be made, or exclusion exercised, with regard to the honours conferred by the head academy, there is no reason why the members of the other institutions, having before them the same prospects as artists at large, should not look up to the Royal and leading one as the necessary complement to their own, and have nothing more at heart than its success, influence, and aggrandizement.

We have followed with advantage the examples afforded by the continent with regard to the manner in which most of our national institutions have been thrown open to the public: also with regard to the decoration of our national buildings there has been a noble commencement, creditable to the first attempts of British art. If we would carry out still further the principle so advantageously adopted by foreign nations, of rendering painting, historical painting at least, truly national, we must extend rather than restrict the advantages which our academy enjoys. At present the privileges of the Crown connected with the Royal Academy appear to be chiefly those of confirming the diplomas granted to the Royal Academicians, and of sanctioning the appointment of the professors and officers,—a reservation which is just sufficient to reflect the splendour of royalty on this institution, without lessening the strength and stability which may be considered to result from an independent position. Whether the control exercised by Government over its affairs should be increased in proportion to the extension of its privileges, remains to be considered by those who have an intimate knowledge of the internal management of the Academy. It will, however, scarcely be denied that the present results of this management are fully commensurate with its resources, if it be considered that nearly 200 pupils are gratuitously instructed in the leading branches of art, that they derive the inducement to study which is afforded by gold and silver medals, and, occasionally, the additional encouragement of a free journey to Rome, granted to the most successful competitors. Whereas, these and other advantages, such as lectures, &c., are almost entirely defrayed out of the scanty means which are supplied by the annual exhibition.

It is with regard to this last department only, that the Royal Academy may be said to enjoy a practical superiority over other institutions devoted to the fine arts, resulting from the accommodation which is afforded in a national building. We do not doubt that any extension of this privilege would be followed by a corresponding diffusion of its advantages, and thus give to the operations of the aca-

demy an appearance of increased liberality in the eyes of artists at large. For however excellent the intentions of those on whom rests the onerous task of admitting and rejecting works of art, and however fair and impartial the rules which are laid down for the performance of this duty, requiring that the fate of every production should be decided anonymously, the large number which, for want of room, are compelled either to be rejected or misplaced, must necessarily remain a cause of dissatisfaction as long as there exists so palpable a disproportion between the number of pictures to be located and the means of disposing of them in a suitable manner. In the exhibition of the German academies, the works of French and other foreign artists are seen to occupy the best positions, beside the productions of the professors of these academies. The satisfactory development which in this country manifests itself of a kindly international spirit, makes us look forward to the time when, with increased means, we shall be able to respond more liberally to the appeals made by foreign industry to this large and influential community of art, and when we shall yield to none of the continental states in that courtesy and deference which are especially due to foreigners.

H. TWINING.

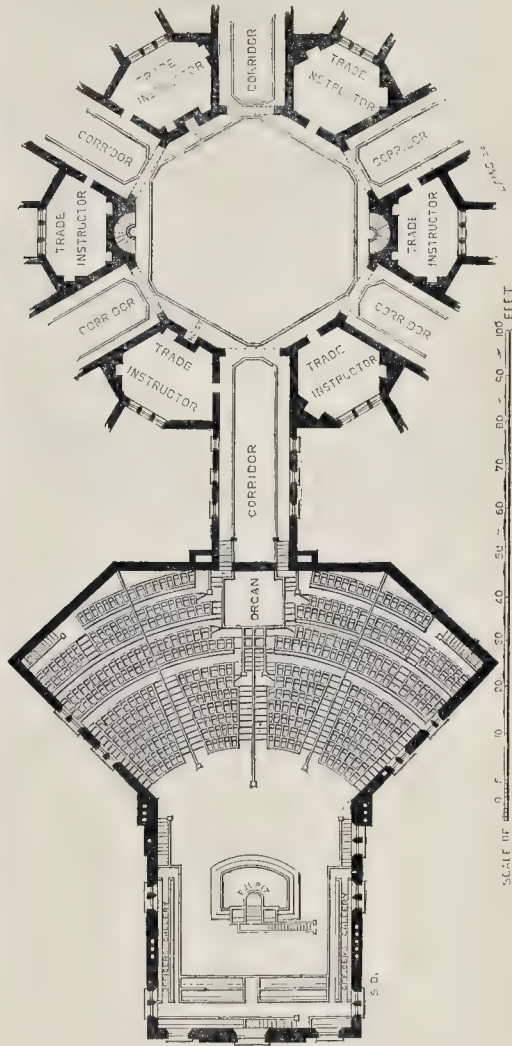
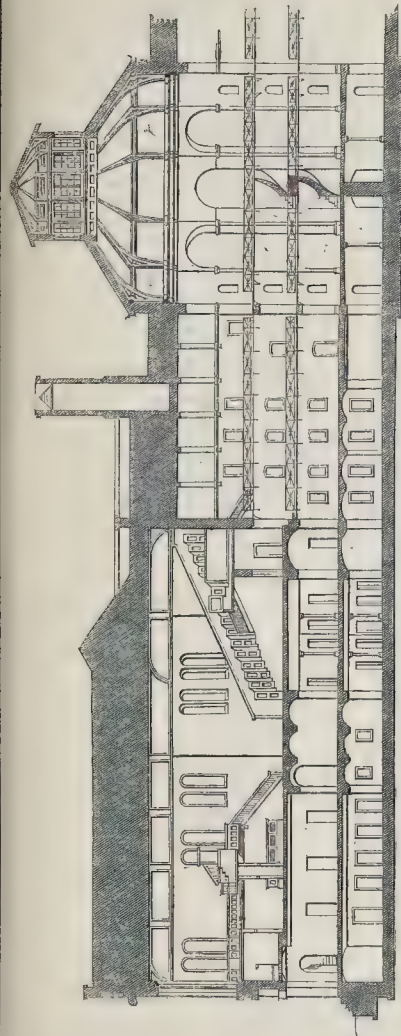
## PURIFICATION OF DWELLINGS.

IN THE BUILDER of last Saturday there are some very pertinent remarks on the effluvia around farmyards and cottages, concluding with a hint as to emanations of the water-closet. Last October I addressed a letter to the Board of Health—when the plan of house visitation was in full operation—with a suggestion that a cesspool visitation might be attended with fully as much benefit. The connection between the cholera and the accumulation of those impurities which daily ought to be removed has been so amply demonstrated, that we need bring forward no additional proof thereof. I beg, then, to recommend to the public that during the approaching summer and autumn particular attention be paid to the daily cleansing of these most attractive sources of the cholera poison. The disinfection of these places all throughout the densely inhabited metropolis can be efficiently secured by the weekly application of the chloride of lime and whitewashing. This may be accomplished at a very trifling expense indeed, and though I am not quack enough to guarantee the non-appearance of the cholera by this mode of purification, I judge that a most important step will be gained thereby in securing the inhabitants from foul smells, at least, with probably a diminution of the number of low fevers which seem to be on the increase; and, assuredly, with the positive certainty of a less impure atmosphere than heretofore has been the lot of London. Whatever can subtract in any degree from the atmospheric impurity, *pro tanto* diminishes the virulence of every form of epidemic and endemic disorder; and this we conceive to be the proper time to put in active execution all the subordinate means we have at command to mitigate the severities of endemic disease. The intrinsic nature of cholera it would be out of place to inquire into here, but its immediate relationship with all organic decomposing impurities is contested by none. That the principle should be successful, it should be carried on throughout every street, close lane, and alley simultaneously; and as it is likely it will be some time ere an efficient system of sewerage can be put in active practice, this temporary expedient cannot, I think, with safety be neglected.

WILLIAM REID, M.D.

NEW PLANING MACHINE.—Mr. W. E. Newton, of Chancery-lane, has patented a planing machine, with two carrier wheels, and an endless band of metal plates hinged together and fluted, the whole driven by bands and toothed gearing from any prime mover. The plank is introduced between the fluted surfaces of the two bands. The planes, eight in number, are adjusted at different angles to the plank by means of screws, and a bar presses on the plank by means of a spring. Both sides may be planed at same time by a second set of planes beyond the first.





SURREY COUNTY PRISON.—PLAN AND SECTION OF CHAPEL, &amp;c.

## NEW SURREY COUNTY PRISON.

We add to our illustrations of last week a plan of the chapel and central hall, and a section of the same part of the building. The chapel has 394 separate stalls.

## THE NEW SOCIETY OF PAINTERS IN WATER COLOURS.

This, we learn from the catalogue, is their sixteenth anniversary, and we cannot but congratulate the institution both on the steady progression of the established members and the excellence of their lately chosen auxiliaries.

(225) "A Sebel, or Public Reservoir, for the gratuitous Supply of Water," is a theme of which Mr. Hague has been enabled to make much. A variety of figures, in eastern habiliments, are so disposed as to constitute a masterly *agroupement*; some too far depressed by drought to avail themselves of the assuaging draught, others partaking with an eagerness not to be easily understood by the well-circumstanced wine-drinking northern and southern. The old pilgrim gratefully receiving from the hands of a charitable woman the welcome cup, too infirm to lift it to his lips, and a Bedouin, who has satisfied his thirst, and is evidently thinking of something removed from kindly purposes, are admirable impersonations of charac-

ter: there is a certain air about the picture reminding one of the French school, especially Leopold Robert, and Paul de la Roche, which, perhaps, is only attributable to the subject; at all events, it does not deteriorate from the excellence of this valuable production. (39) "Miseries of War," and (52) "A Guard Room," in the same artist's more recognized style of Dutch depiction, are profuse in the rich qualified colour and low tones so remarkable in this artist, although light and air are never sacrificed at their expense.

Mr. Wehnert is amongst the painters who read and think, and never produces anything to which he is at a loss to find a title,—one of those whose subjects (though not always new) are wrought with a zeal commensurate with his abilities. (193) "Caxton reading the first Proof-sheet from his Printing-press in Westminster Abbey, March, 1474," has furnished him matter for an admirable instance. The severe style of the Early Germans has always more or less influenced his conceptions from the commencement of his career; and, if amenable to the test of "mannerism" (moulded from highly authoritative models as it is), it is not trite plagiarism, but a praiseworthy intention of treading in the path cut out by predecessors towards the unexplored regions of perfection. Caxton is seated amidst disciples, calmly perusing the sheet fresh from the press; Wynkynde Worde, Richard Pynson, William Macklin, Setton, with the rest of his disciples, are anxiously awaiting his remarks, all intent on the momentous experiment, and one is repelling the

advances of a waiting-maid laden with refreshment, lest she should disturb his attention: the earnestness with which some are examining the proof, and others the effect it has on their master, is admirably portrayed.

(75) "Christ with the Disciples in the Cornfield," by Mr. Henry Warren, is an important feature in the exhibition; large in drawing, and with beautifully-cast and painted draperies. A certain appearance of haste in the getting up is perhaps observable in this fine embodiment of a beautiful text: the foreground and corn are charmingly rendered.

(65) "Joan of Arc," J. Absolon,—represented in prison musing over her past glories, observing her armour, left by design or accident in her dungeon (so says history), successfully expresses a longing to don the harness once more for the sake of *La belle France*: the doubt with which she contemplates between patriotism and the expediency of devoting herself to religion is happily conveyed.

One of the most versatile of geniuses is Mr. E. H. Corbould; with art, requisites, as it were, at his finger ends,—he strives to hide the light of his excellence under the bushel of affectation; but in spite of all the discrepancies of a too fascinating manner, the many fine qualities that characterize his numerous emanations, pronounce him an artist of no mean pretensions. (271) "Elgiva in the hands of the creatures of Odo, Archbishop of Canterbury, is extraordinary in effect and manipulation; full of imaginative and executive beauties. The ruffian who holds the too resigned Elgiva



(for, *certainly*, no woman would so gracefully and amiably submit to having her beauty spoilt) is admirably posed and drawn. (315), "Floreti de Nerac, at the Spring of la Garenne." A concentration of incongruous excellencies and defects, elegant to a fault, exhibits a charm of line, and a simple grace in the chosen attitude that more than counterbalance the stiffness of stiff petticoats, and the most alabaster-like toes that were ever picked out with pink.

Mr. Wm. Lee, who seems to have adopted a style not dissimilar to Mr. J. J. Jenkins, shows considerable improvement on preceding exhibitions, (86), "Asking a Blessing," manifests great perception of the picturesque nature of every-day life incidents. The picture is invested with an apparent truth without vulgarity, and refinement wisely removed from prettiness.

Miss Setchell, of "Momentous Question" renowned, has by no means shown an advance in her (258) "Jesse and Colin;" the effects of the line-drawing about the arms of the male figure is hardly counterbalanced by the lovely head of Jesse (suggestive of Hogarth) or by the draperies, be they never so rich in colour and well painted.

W. Bennett (a name that has lately added strength to the landscape department) is affixed to some *quarter of a hundred works*, that vie in crispness and natural freshness with the best specimens of water-colour depictions: a charming feeling for sober grey tones is observable, not unlike, in some respects, David Cox. (40) "Harlech Castle, North Wales;" (52) "A Road through the Forest;" (82) "Bolton Abbey, Yorkshire;" (120) "Sunset, Clapham Common;" (121) "A Forest Glade;" (170) "A Woodland Scene," and others, bear witness to his industry and ability.

Mr. Charles Davidson, another of nature's pupils, and a strict attendant of the only true school, revels in shady nooks, under leafy canopies: he is the Creswick of water colours. (23) "A Study of Beech Trees, Knowle-park;" (57) "Belton-park, Yorkshire;" (141) "Entrance to Hook-wood, Seven-oaks;" (203) "Near the Duchess's walk, Knowle-park;"—a composition in which he has been ably assisted by Mr. Harrison Weir,—force themselves upon the attention of all by their truth and power.

The most important contribution of Mr. Penley is a "Sunset,—A Coast Scene" (97), painted with vigour and knowledge of what he was about.

Mr. Carrick describes in a broad masterly way some (104) "Highland Emigrants,—Morning of the Departure," a striking drawing, with nice feeling for colour: another week's work might be well bestowed.

The drawings by Mr. Vacher bear witness to time well spent during his late sojourn, and show great improvement in execution. (44) "The Bazaar, Algiers," is the most important of his exhibitions, and is entitled to admiration.

It would take more room than we can spare to praise in turn, as they deserve, the many clever effusions of Messrs. Fahy, Howse, Hardwick, Maplestone, Oliver, Rowbotham, Weigall, &c., the exquisite specimens of floral painting of Mrs. Margetts, and the highly meritorious works of Miss Fanny Corbux, Miss Jane Egerton, Mrs. Harrison, Mrs. Harris, or the successful bits of nature contributed by Mrs. Oliver and Miss Fanny Steers. Suffice it, then, to say, that all have creditably exerted themselves to render their gallery very attractive.

#### ON THE GYPSUM FOUND NEAR PARIS, AND ITS APPLICATION AS A PLASTER.\*

AMONGST the local advantages enjoyed by our professional brethren of the French capital, that afforded by the unlimited supply of a very superior description of plaster may be ranked as one of the most important. The facilities afforded by the railway and steam-boat transit having at length put us (to a certain extent) upon a footing of equality in this matter with them, it becomes important to examine the nature of the material thus offered for our use.

Regarding plaster mechanically, it may be considered as a species of lime, which is susceptible of being employed without admixture with any other ingredient than water, and of attaining with singular rapidity a moderate degree of hardness. These qualities would render its employment in all cases very desirable, were it of a nature to resist the influence of the atmosphere. But unfortunately it is utterly incapable of resisting the effects of humidity when used alone.

The gypseous deposits near Paris form a very distinct and easily identified group, or sub-division, which comprehends (at the same

time as the gypsum) alternating beds of marl, either calcareous or argillaceous. These beds follow an order precisely identical throughout the whole district, from the neighbourhood of Meaux to Meulan. Some beds are absent in particular cantons; but those which are still to be met with occupy the same relative positions.

The gypsum immediately overlies the calcareous beds Cuvier designated as the "calcaire marin;" and their appearance in the landscape of the neighbourhood of Paris is very remarkable, even in a picturesque point of view. They cap the hills of the older and harder formations; and appear to have suffered more severely from the denuding effects of the cataclysms which gave rise to the existing valleys, than the subjacent rocks. They thus form, as it were, a second range of hills (sometimes conical, as at Montmartre, Les Buttes Dorgemont; or elongated, as at Chaumont and Belleville, Triel, &c., superposed on a first series of hills, bearing all the characteristic marks of the calcareous ranges.

We find at Montmartre and at Belleville, where the formation exists in the most perfect development, that there are three masses of gypsum of various thicknesses.

The quality of the gypsum is not the same throughout the whole thickness of the different masses. Great care is then required in so mixing the different sorts of stone as to secure an uniformity in the plaster obtained by the burning. Some of the beds are reserved for special uses; the hard beds, in the remaining portions, require to be mixed with the softer ones. As might naturally be expected, this variety introduces a complication in the manufacture, which frequently gives rise to improper fabrication, and opens the door to much fraud. Indeed, the fabrication of plaster near Paris, still more in the departments, is liable to all the reproaches that we so ungenerously address to our own cement manufactures. Such must always be the results of unlimited competition, and as long as price is made of more importance than quality such they will remain.

The mode of burning usually adopted is very rude. It consists simply in building, within three walls, covered with a rough fixed roof, a series of arches, 1 foot 8 inches wide by 2 feet 4 inches high, with piers formed of gypseous stones, as are also the arches. These are then filled up to a height of 13 feet with stones, so arranged that the largest are at the bottom, the smallest at the top. The arches are filled in with fire-wood, which is set light to, and the fire kept up so as to maintain the baking for twenty-four hours. The dimensions of these kilns are such as to enable them to hold from seventy to seventy-five tons. In some of the quarries a more rational style of burning is adopted, which consists in passing the already pulverized stone through cylinders, which revolve in an open fire. I have, also, in one of Mr. Weale's treatises, mentioned an application of overheated steam to the same purpose; but the inquiries I made in Paris, about a month since, lead me to believe that it has not yet been fairly tried.

Indeed, there is always a difficulty in introducing any new process in the ordinary arts of life, such, for instance, as the one which meets us on the threshold in the use of the French plaster. Near Paris, the workmen have always been accustomed to employ plaster burnt in immediate contact with the wood. In that process the brees become necessarily mingled with it, and we find now that the men have come to consider the grey colour they communicate as an indication of a superior quality. The Paris workmen, in fact, do precisely the reverse to what our workmen do: upon the same principle, nevertheless, viz.—from an irreflexive habit. They dislike a white plaster; we attach far too much importance to it. Truth, as in most cases, lies in the mean. The absence of the brees certainly does not diminish the value of the plaster: the extreme whiteness we contend for in London is for the most part obtained by the use of a softer description of stone, or by the admixture of some extraneous ingredient.

The operation of burning the plaster stone is, after all, only effected for the purpose of dehydrating, or driving off the water of crystallization from the gypsum. Before this

is done the stone is hard; afterwards, it becomes pulverulent and floury. The "rationale" of its use is, simply to present such a quantity of water as is necessary to restore it to the original state, when it resumes its natural hardness, with a commencement of a confused crystallization. Now this action may be, and is, carried on irrespective of colour; that is to say, at least, the presence of the wood ashes, which gives rise to the grey tint the Paris workmen require, does not affect the combination with the water. Our own very white plasters owe their beautiful colour to the absence of the carbonates of lime, or the marls, which, in fact, communicate very superior qualities to the stones yielding plaster less purely white.

To secure a good quality of plaster, it is advisable to apply a moderate heat in the beginning, which is to be augmented gradually. When the plaster is not sufficiently burned, it becomes dry and sandy: in this state it does not set with any degree of hardness. When it is overburnt, it also loses its adhesive properties: it ceases to have what the workmen call "de l'amour;" it will not cling to the fingers, nor has it the rich unctuous quality which characterizes the well-burnt plaster. As soon as it is burnt, it should be ground and employed as soon as possible after the manipulation is completed.

In Paris the mode of using plaster is to employ it pure and free from mixture. The very low price at which it is sold, and the comparatively high price of sand, dispense with the motives of economy which render mixtures almost indispensable in our case. The town of Paris pays, for its municipal works, at the rate of 12s. 9d. per ton of plaster, whereas it cannot yet be had in London for less than about 40s. per ton. Whilst the practice in France is to use plaster pure, I am disposed to think that the mixture of sand, so far from being prejudicial, is even desirable, if confined within reasonable limits. We find that in re-assuming the state of hydrated sulphate of lime, the plaster goes through an imperfect crystallization; and this action is accompanied by a singular re-arrangement of the molecules. This causes the plaster to swell when used alone; and to such an extent, that it is impossible even to finish a ceiling close up to a wall at once. Now the introduction of a body so full of inequalities as the coarse, sharp sands, must afford room for the free action of this expansion; and, at the same time, the facets of the sand must offer, as it were, nuclei, which cannot but be favourable to the crystallization. It is, doubtlessly, on these principles that we can explain the superiority of the plaster containing the wood brees, which does become harder than the purer plasters, if used alone. Too large a proportion of sand should be avoided; but very fair work can be executed even with a mixture in the proportions of two of sand to one of plaster. Under any circumstances, the finishing coat should be pure. Subsequent experience will decide whether the use of two materials of this kind do not expose the work to unequal contractions, likely to cause fissures, or cracks.

The plaster made near Paris sets with a rapidity very much greater than any material we are accustomed to for plastering purposes, and, for very large uniform surfaces, perhaps this is a difficulty. The workmen have not the time to work the floating coats with the mathematical correctness we usually exact in our country. But, to a certain extent, this objection may be obviated by slight differences in the mode of preparing the plaster, or by altering the quantity of water in proportion to the positions in which the material is required to be used. Thus, if all the strength of the plaster is needed, the smallest quantity of water is introduced; about as much in bulk as the plaster itself occupied. This is called, by the workmen "gâcher serre" (stiff gauged). When it is necessary to work and rework the face, as in setting coats, more water is added, or the plaster is said to be "gâché clair" (gauged thin). Habit alone can fix the precise proportions, for it is impossible to arrive constantly at the same results in the burning. For the very finest works, the workmen make what they call a "coulis;" this is run in a semi-fluid state. Plaster which has been thus treated with an excess of water, does not acquire the tenacity nor the hardness of that

\* Part of a paper read at a meeting of the Institute of Architects, 8th April.



treated in such a way as only to present to it the water of crystallization.

The extraordinary forces of adherence, &c., of the Paris plaster, enables the work on ceilings or partitions to be executed with far less expense of lathing than similar works executed with our lime and hair. Rondelet made experiments to ascertain the limit of these forces, and he obtained the following results:—A parallelepipedon of plaster, with a base measuring 1 inch each way, supported a weight of 76 lbs., acting so as to tear it asunder: this he called the force of adhesion. Similar figures resisted a crushing weight of 722 lbs.; so that the ratio of the resistance of plaster to an effort of traction, compared to one of extension, is as 1.93. \* \* \*

The usual practice in Paris is to execute the work intended to be plastered with rubble stone, set in plaster mortar. If possible, the principal elevations are executed in ashlar: externally, plaster is never used if it can be avoided, for its use requires care and numerous precautions. Firstly, the plaster coat must be entirely out of the ground; it must be removed from all weatherings, where the capillary action would allow the absorption of water; the upper surfaces must be covered with zinc, or other metal; and, if it be expected to stand for many years, the whole must be painted. When, however, plaster is to be applied on walls, externally or internally, the course followed is to clear out the joints of the masonry, and to wet the surface. Plaster, gauged stiff, is laid on with a broom, or in any similar expeditious manner, and it is brought to a tolerably uniform face by use of the trowel. This is called "faire le crepi," a term equivalent to our "rendering." The floating coat, or "l'enduit," is applied by the trowel, and dressed off with a rule, in somewhat a similar manner to the system followed by our own workmen; but it is in the execution of this work that the greatest difficulty arises, from the rapidity with which the plaster sets. The stuff is gauged thin, but not sufficiently so to allow much manipulation. When the face is floated, as described, the plasterer passes over the surface with a sort of toothed trowel, called "la truelle bretelée," using, firstly, the toothed side, to remove any asperities, and finishing with the knife edge on the other. A thin setting coat is lastly added, to stop up all the pores or inequalities. The time required to complete such plastering on wall is very short, compared with what we are accustomed to. The floating coat may be applied within four days of the rendering, under favourable conditions, and the whole work easily completed in a week.

Partitions are usually executed in a manner essentially different from our own. A sort of wood framework is made, without much complication of carpentry, by the way,—for the French very wisely prefer a wall where we too often place large trussed partitions. The French partitions rarely consist of more than upright posts, with stouter ones for doorways, and a few discharging braces or horizontal ties. The upright posts, "les poteaux," are spaced about 1 foot 4 inches apart: the doorposts are usually planed so as to form the architraves of the doors,—they are called "les poteaux d' huisserie." Upon the common quarters laths are nailed (mostly of poplar or of fir), which are from 3 inches to 4 inches wide, and spaced about  $\frac{1}{2}$  inches apart. The interior is filled in with old plaster rubble or light stone, and the outer surfaces rendered as for walling. Such partitions answer admirably for the purpose of keeping out sound, and are tolerably light. From the immense quantities of plaster rubble to be met with in Paris, they are also, comparatively speaking, economical. Close lathing is very rarely executed; nor, in fact, do the oak laths used in France allow such work to be well done. Some masons in Paris use a sort of tile, cast beforehand purposely for this use, and made of plaster. This system is not so solid as the usual one of only employing rubble, for the plaster does not adhere so well to the smooth faces of the tiles, but it avoids a very considerable amount of humidity.

Ceilings are executed in several manners.—1. The space between the joists is filled in solid, with plaster, or stone rubble, carried on rather wide laths underneath: the lower surface is then rendered as a wall would be, and

a bed is formed on the top to receive the tiles, or sleeper joists and flooring are added. This is said to be "hourdé plein."—2. With close lathing, as in England, "à latis jointif."—3. The third manner, and the one most usually adopted, because it binds the joists together the most effectually, without loading them unnecessarily, consists in lathing the underside of the joists at distances of about  $\frac{3}{4}$  inches from centre to centre. A species of flat centreing is then placed under them, and a coat of plaster of about  $\frac{1}{4}$  to  $\frac{1}{2}$  inch is laid over the laths so as to stop against the boards on either side, and between them. The plaster is brought up the sides of the joists, and worked so as to leave a hollow channel. The ceiling itself is then applied below this coat, called an "auget."—4. In the country, again, another manner is used, namely, the joists are left apparent, and only the intermediate spaces are ceiled. If the third manner could be adopted under the requisite conditions of economy, it would be very desirable, for it unites the great advantages of solidity and impermeability to sound, in which respect our newly-built houses leave so much to be desired. \* \*

Now the proprietors of the French quarries have lately made arrangements by which the real plaster of, and from, Paris may be obtained in London at prices below those of our English plaster. Its use will, I am personally convinced, very soon supersede the barbarous mixtures of lime and hair, and all such trumpery, we have been forced to employ hitherto in its absence. A new application of any material is, however, always exposed to many risks and failures, from ignorance of its qualities, from unskillfulness in the handling, and even from the prejudices of those employed to execute the works. GEO. R. BURNELL.

#### ARCHITECTURAL PROGRESSION.

I AM not much given to writing in the public journals, and am quite unskilled in controversy, but as I have, in a hasty moment, ventured to push myself into other men's disputes, I may perhaps be excused if I add a few words, merely to avoid the risk of confusing the question I intended to elucidate.

I wish it, then, to be understood, that with me, the question is not one bearing upon copyism.\* I am as much opposed to that, in the abstract, as any one; nor is it a question as to whether certain principles propounded by your respected correspondent in his first letter were right or wrong. I confess I had then never seen that letter, and I agree with much that it contains, while I dissent from some of its premises, and nearly all of its conclusions: nor is it a question of a personal character, such as whether, on the one hand, the Gothic revivalists are too timid and puerile in their attempts, or, on the other, whether their opponents have once been zealous and humble students of mediæval art, but, on emerging from the *status pupillari*, have thrown aside at once their zeal and their humility: such questions are of little importance.

The real question is simply this:—As we are called upon to progress, and admit the propriety of the call, what is to be the starting point from which our progression is to commence? I do not ask this for my own information, nor for those who hold the same opinions with myself: with us the die is cast, we have chosen our starting point, and shall now probably follow our course, whether right or wrong. I only ask it for the sake of clearing the question of difficulties which may perplex those who have yet to choose.

Your correspondent, in his first letter, has ably and clearly described the condition to which we are reduced through our forefathers having once departed from the progressive course. So far we are entirely agreed, and I am only arguing with those who admit so much, not with the Philogrecians, with whom we have nothing in common. The fact, however, remains, however we may deplore it, and through it we are now left without a style of our own. We see that no progression has hitherto taken place without some groundwork to go upon, but we feel that we have none of our own,

\* I may here mention that the title given to my letter was not my own, and that I had throughout used the full name of your correspondent, instead of his initials, not having indeed seen the letter in which the initials alone were given: I only mention this to avoid apparent inconsistency.

owing to our having once wandered from the direct course of progression. We hold it to be most reasonable, under such circumstances, at once to return to the old path, and in that path to progress as vigorously as we are able. I have, in my hasty letter and elsewhere, given my own reasons for such a choice, and as our opponents assume a position of conscious superiority, the least we can expect is a clear statement of their choice and their reasons. All we at present know is, that they have decided that we are wrong, but this decision will produce only perplexity unless they tell us clearly and specifically what is right.

If we are to progress, it is clear that we must have a common starting point, or our progression will not be in common, and can lead to no unity of result. The Gothic revivalists are the only parties who have even attempted to agree on such a point; yet we are the selected objects of the attacks of those who have, so far as we can see, made no such attempt. We may have made a very foolish choice, but so far as we can discover, our opponents have made none. They say they were once precisely where we are now; but they gave no practical proofs of it: they assert that they are now far in advance of such a position, yet we look in vain for any result of their advance. We, at the least, show our sincerity by the practical carrying out of what we urge, be our works never so puerile; but when we ask for the practical working out of what our opponents are so loud in urging, the result is absolutely nil,—a perfect blank. The revival which we press for, imperfect as it is and feebly as we have attempted it, is yet the great architectural fact of the age; it may be a very lamentable fact, but still it is the fact; while if we call for facts from our opponents, we have, as Mr. Pugin says, the "eos" (in abundance) but "*præterea nihil*."

It is but fair that we should see the carrying out of their principles, and that the public should judge between us, not by what we say, but by what we do. Till I see something of this I shall trouble you no more on the subject, but, in the meantime, urge upon those students who are disposed to go with us not to be discouraged or perplexed by such questions, but to press earnestly forward: a glorious field lies before them. We are, in fact, but the pioneers: to them may be reserved the perfect carrying out of what we are now labouring for, though they will fail if they attempt it without first laying as a foundation, a perfect knowledge of those glorious remnants of Christian art which we select as the groundwork on which our progression is to be founded. GEO. GILBERT SCOTT.

#### EARLY DOCUMENTS CONCERNING WORKMEN.

REFERRING to Mr. BURLINSON's remarks on the documents concerning Freiburg Minster in last week's BUILDER, it is suggested that the word "gesellen" is used in them in no other sense than that which it still has in the present day in Germany when applied to workmen, namely "journeymen," and that the state of society among the workmen in those days is nowise brought in question by the use of this still current expression. Meister Hans is duly distinguished in the documents from the "gesellen," or journeymen workmen, and he is required to attend once in each quarter at the building, viz., at the Ember-weeks, or Frohn-fasten (not Fron-fast, as printed). Under him is the parlier, or foreman, from French "parlier," because, says a German work, he only has to speak on the building. Should it be the case that this word, so derived from the French, is chiefly in use among the workmen of those towns in Germany in which the mediæval masonic fraternities were settled during the erection of the Gothic buildings (so called) of that era, another indication is afforded as to the country from which these societies may be supposed to have derived their principles and practice of architecture, in conformity with the deductions contained in Mr. Inkersley's work, reviewed in last week's BUILDER. N.

ART-UNION OF LONDON.—The distribution of works of fine art will be made on Tuesday next, at Drury-lane Theatre,—the Duke of Cambridge in the chair. We shall give the report and the names of prizeholders.



## INTERIOR OF ST. STEPHEN'S, HAMMERSMITH.

MR. SALVIN, ARCHITECT.





ST. STEPHEN'S CHURCH,  
HAMMERSMITH.

At the personal expense of his lordship, the Bishop of London, a church has been built at Shepherd's Bush, under the direction of Mr. Salvin, and was consecrated a few days ago. The bishop also endows it with 150*l.* per annum out of the revenues of his see: the Ecclesiastical Commissioners add 40*l.* per annum, being the amount of the reserved fund payable to them on account of the sinecure impropriated rectory of Fulham and Hammersmith. It is to be the church of a new parish, which is to be named St. Stephen's, Hammersmith; the patronage to be with the Bishop of London for the time being.

The building comprises a chancel, with vestry on south side, nave with aisles, north porch, and tower and spire at west end of north aisle. It is in the Decorated style, and of very satisfactory character. The walls, 2 feet 3 inches thick, are faced with Kentish rag, and the dressings are of Bath stone. The roof timbers, slight in appearance, are open: the spaces between the rafters are plastered and tinted blue,—further decorated in the chancel by scroll-work. The church has open sittings for 632 persons. The organ is on the floor-level, under the tower: the font is near it. The pulpit and reading desk are on the south side: there is no clerk's seat.

The east window, of stained glass (by Wailes) has been presented by members of the bishop's family; the west window, by some residents in the neighbourhood of the church; the two north windows in the chancel, by a gentleman in the neighbourhood; the south window in the chancel, by the architect and builder; the two windows at the east ends of the north and south aisle, by a number of the Essex clergy, as a mark of respect and affection to their former diocesan; a small window near the roof of the chancel, by the bishop's chaplain; and the two quatre-foils in the nave, by Mr. Willement; the organ, by some personal friends of the bishop; the communion plate, by his family and two friends; a silver-gilt alms' dish, by the same Essex clergy; and the font by the churchwardens of the Holy Trinity, Finchley, in testimony of their gratitude for the great assistance rendered to that district by the bishop. The bishop is about to build a parsonage-house, and it is expected that schools will be erected by the parishioners.

The site has been given partly by Messrs. Gomm, of Hammersmith, and partly by the bishop, as lord of the manor, who has also purchased a piece of ground to be added to the site of the house for a garden. The fabric of St. Stephen's was erected in the space of six months by the builders, Messrs. Bird, of Hammersmith: the whole completed in thirteen. The interior is entirely fitted with English oak, and the walls decorated with appropriate inscriptions and diapers, by Castel: the aisles are laid with Staffordshire red and buff tiles, and the chancel with Messrs. Minton's encaustic tiles: the organ was built by Mr. Bishop.

Our view shows the interior, looking west.

The following are the dimensions of the building:—

	Ft. In.
Length of nave .....	68 0
Length of chancel .....	34 6
Total length inside .....	102 6
The total length from outside walls .....	107 6
Width of nave .....	24 0
Width of aisles (each 11 feet) .....	22 0
Width of piers of nave (each 2 feet 4 inches) .....	4 8
Total width inside .....	50 8
Total width from outside walls .....	55 4
The width of chancel inside .....	21 0
Ditto outside walls .....	25 8

There are north and south aisles to chancel extending 14 feet 4 inches beyond the west side of chancel arch, making the length of aisles inside .....	82 4
Width across chancel and chancel aisles inside .....	49 8

Tower (west end of north aisle) inside, square .....	10 0
Ditto ditto outside, square .....	17 0

The vestry at south of south chancel aisles, inside, is, square .....	12 0
The height of the nave to ridge is .....	46 0
The height of the tower to base of spire is ..	56 9
The height of tower to top of cross .....	75 0
Total height of tower and spire .....	131 9

## NOTES IN THE PROVINCES.

THE damage done to St. Michael's Church, Cambridge, by the late fire, is found, on examination by Mr. Scott, the architect, to be such as to require extensive repairs, including the entire restoration of the roof, and considerable strengthening of the walls, &c. &c. An appeal to the public beyond the limits of the parish has therefore been made, as the parish contains only 400 inhabitants, far from wealthy. The first contract (for the restoration of the roof and walls) has been taken by Messrs. Quinsee and Attack, at 1,154*l.* 5*s.*, of which sum the parish is liable for 731*l.* 5*s.*—The Plymouth council are about to lay down a quantity of glass pipes, jointed with gutta percha, as an experiment, for the conveyance of water.—The Board of Guardians of the Truro Union entered into a contract with Mr. J. Pryor, builder, Truro, week before last (his tender being the lowest), for the building of the Union-house, at St. Clement's. The amount is 8,521*l.* They also appointed Mr. Rugg, clerk of works, who has been engaged in superintending the Shepton Mallet Union. There were forty-five applications for the office. The architect for the above is Mr. William Harris.—Mangotsfield Church, for some time dilapidated, has undergone thorough repair, under the direction of Messrs. Pope, Bindon, and Clarke, of Bristol. The edifice has been newly roofed, and is supported by pillars, with connecting arches, in the Perpendicular style. The windows are filled with stained glass, in imitation of the early style. The high and unsightly seats have been removed, and light and convenient ones substituted. Mr. Rogers is the builder, and Mr. J. Davis the master mason employed.—A public meeting has been held at Sudbury, for the erection of a suitable memorial to the late Mr. G. E. Anson, secretary to Prince Albert, Lord Waterpark in the chair, when it was determined that the clerestory windows of the church of Hanbury, the parish where Mr. Anson resided, should be restored and illuminated. Two hundred pounds will be required.—An extensive monastery, it is said, is about to be erected at Rugby.—The superintendent of the gas company at Rugby has found, as anticipated, that the materials for purification of gas already referred to may be repeatedly used without the least exhaustion of their power. In noticing before the mode in which the "sulphuretted hydrogen" was got rid of, that term was inadvertently made use of, once too often, instead of "sulphurous acid gas," in which form the oxygen of the air alluded to causes the sulphur to escape of course, and not as sulphuretted hydrogen. As to the result, it matters not: in both cases the oxide of iron remains—the one useful chemical ingredient, mixed with the sawdust and the used-up lime in sulphate.—The foundation stone of a new church, to be called St. Marie's, (?) was to be laid on Monday last, at Liverpool. Mr. Hay is the architect.—The Rev. Dr. Young's pupils are raising a subscription to place a stained glass window in the ancient church of Houghton-le-Spring, where they attended when at Kepier Grammar School.—Some very successful experiments appear to have been tried at Bolton, with jet and hose acted through by the mere pressure of water in the mains, opened for use by the attachment of new water valves invented by Messrs. Taylor and Galloway. Streams of water were thus not only thrown over the houses, but purposely directed on a chimney, whence brick after brick was toppled by the mere power of the stream. A new fire-escape was also exhibited on the same occasion, before the local authorities, and Mr. Hawksley and other gentlemen from Liverpool, assembled on purpose, according to the *Bradford Observer*.—Mr. James Hartley has presented a stained glass window to Bishopwearmouth church, manufactured at the donor's works.—A committee

of Durham county magistrates, we understand, says the *Gateshead Observer*, "have selected from the sixty-five candidates for the office of county surveyor, vacant by the resignation of Mr. Bonomi, the following five gentlemen, one of whom will be appointed by the court:—Mr. John Hosking, of Gateshead; Mr. G. B. Bruce, of Berwick; and Messrs. J. Hill, G. Sibley, and A. H. Patterson, of London. Mr. Hosking is the gentleman who personally carried out Mr. Robert Stephenson's design of the High Level Bridge." We understand the latter was elected.—The old Stockwell bridge at Glasgow is now in course of demolition. "Antiquaries," observes the *Reformers' Gazette*, "will no doubt be looking forward with interest to the probability of there being found, in some part of the structure, the foundation-stone, which, if ancient builders followed the modern practice, need not be sought for very deep in the bed of the river." It is to be hoped, at all events, that something else will be found than merely "a white porcelain biscuit vase with its virgin purity tarnished by the trail of dirty fingers," as on a late *melancholy* occasion.—Mr. G. J. Foljambe, of Osberton Hall, is about to build a church at his own cost, at Brierly, near Barnsley.—A chimney at Darwen, erected in 1847, and about 98 feet high, lately fell to the ground: the foundation had given way shortly after its erection.—A tessellated Roman pavement, in good preservation, has been found amongst the drains in Featherstone, Chester. It appears to have led in a direct line to the baths in Bridge-street.—The church of John the Baptist, at Godley-cum-Newton-green, was consecrated on Thursday week before last. It contains 543 sittings in the body of the church (157 free), and 253 free sittings for children in a gallery. Mr. Shellard, of Manchester, furnished the design.—At the last meeting of the Birmingham board of guardians, Mr. Drury, one of the architects of the new workhouse, stated that about thirty applications had been sent in for the office of clerk of the works. Out of that number Mr. Swiney, of London, and Mr. Husband, of Lichfield, had been selected as most eligible, and the guardians gave their assent to the appointment of the latter. The security for the fulfilment of the contract for building the new house was 3,000*l.* as a reserve in payments, and a joint security of 3,000*l.* more. Mr. Glen, the contractor, gave the names of two sureties, whom the guardians by a large majority accepted.—The foundation stone of a church to be erected at Wavertree was laid on Tuesday week. It will consist of a nave 86 feet by 27 feet, and 57 feet in height, with aisles the same length, and 15 feet wide, a chancel 40 feet in length, a south porch, and a steeple at west end of nave, 36 feet wide at base, and rising to 151 feet in height. Owing to limited funds, it is only proposed to contract for the erection of the nave and south aisle, south porch, and portion of the tower at the west end.—On Wednesday week the new church at Cholderton, near Salisbury, was consecrated. It is in the Perpendicular style, and consists of a long and somewhat narrow single aisle, lighted by four windows on each side, with a large three-light centre window at either end. The walls are of flint, with stone dressings; and the exterior exhibits some carving in the corbel heads, with a string course under the eaves. At the north-west corner is a campanile rising a short height above the roof. Buttresses are placed between each window. The great western door is carved in oak. On entering, there is an ante-chapel, separated by an ornamented stone screen from the body of the church. It is paved with Minton's encaustic tiles,—the centre piece displaying the arms of the United Kingdom. The sittings are of oak, profusely carved, and finishing with poppy-heads. The floor is paved with Minton's encaustic tiles. The pulpit is of stone, octagonal, with crocketed pinnacles. The roof is of open woodwork, and was brought from Ipswich, where it had long covered a public building on the quay, but was supposed to have been removed there at the period of the Reformation, from some old conventual church. The long and narrow shape of the church is owing to its adaptation to this roof. The eastern window is decorated with stained glass. The two contiguous side windows in the chancel are also filled with coloured glass. All these are the work of Mr.



Clutterbuck, of Stratford. The western window represents the Baptism of Christ by John, the passage of the Red Sea, and the four Evangelists: it is the work of Mr. Connor, of Berners-street. The walls are decorated in the interior with scrolls in the mediæval style, by Mr. William Howitt, who executed similar work at Wilton Church. The architects were Messrs. Wyatt and Brandon; and Mr. Alford, of Tisbury, executed the masons' work. The wood-carving and restoration of the roof are the work of Mr. Henry Ringham, of Ipswich. The first stone of the edifice was laid on 29th April, 1841.—The magistrates of Southampton have approved of a plan suggested by the mayor and an architect whom he consulted, for the enlargement of the Guildhall, at a trifling expense, yet so as to make it contain one thousand persons.—The repair and decoration of the Essex County Assembly-room, at Chelmsford, has been so far completed. The tint of the walls is a French white, the small mouldings of the panels in gold, and the entablatures also gilt; the roof is in distemper; the pilasters on the walls have sunken panels grained, the base being of Brocettella marble; the panel is Sienna, with gilded moulding, edged with green. The stiles are of green verd, and the capitals solid gilt, finished with statuary marble. The ornamented frieze above is finished in white and gold. The window recesses and frames and the door are executed in satin wood, and the windows have been fitted up with crimson curtains, surmounted with the county arms in gold. The designs were provided by Mr. Webb, of Chelmsford, and the contractors were Messrs. Winsland and Holland. The cost was principally defrayed by the remains of a subscription made in 1791 for a like purpose. Of 1,000*l.* to commence with, nearly 800*l.* have been expended, Messrs. Winsland's contract of 335*l.* inclusive, and more remains to be done.—The foundation stone of the Great Central Gas Consumers' Works, at Bow Common, was laid on Tuesday last, and was followed by their first annual festival, held at the London Tavern on the same day.

#### SURVEYORS OF PUBLIC SAFETY.

By the late catastrophe at Epsom, three persons were immolated, and fifty seriously injured or mutilated. Such an event leads to the inquiry, "Is there no supervision of the platforms and gazebos which are constructed at the race-courses and fairs of this country?" When we reflect on the vast numbers who frequent these scaffoldings, it is only surprising how few accidents do occur, for I have seen sutlers and rustics setting up their poles, putlogs, and traverses, without the slightest notion of that solidity of ligatures and spikes which the most illiterate bricklayer's labourer would put in practice.

The profits resulting from races and fairs are not, however, all engrossed by the victuallers, thimble and tent riggers: the lords of manors (and especially that of Epsom) reap enormous profits per booth, table, or pitching stand: the owners exact their rights,—have they no duties? Such an incident leads one to inquire into the stability of stand-houses, which for many years have stood the drizzle of the breeze. On these some 5,000 are not infrequently packed,—being just 125 tons of mortality. It is at least worth the attention of the local surveyor, mayhap of the legislature, to inquire whether there be sufficient stability to sustain such an awful amount of life and responsibility.

The hint is thrown out in order that some rural curator be appointed to look to the security in limb as well as life of John Bull and his family in their least cautious moments,—when pleasure-going. This concerns the State, the coming sports, and present day, as well as

QUONDAM.

HEREFORD ANTIQUARIAN INSTITUTION.—A *soirée* was held on Friday week, Rev. E. N. Bree, the president, in the chair, when a paper on Acornbury Church and Priory was read by Mr. F. Edmunds, and illustrated by drawings of the porch, and the Pouncefort and Clifford monuments, executed by Mr. A. J. Beloe, of Hereford.

#### COST OF MARYLEBONE BATHS AND WASIHOUSES.

RELATIVE to a discussion on this subject, mentioned last week, we are asked to state that the additional expenditure over the contracts of 13,000*l.* (which did not include the baths), was for various additional works in securing the surrounding walls, additional depths of foundations, increased entrances, division of swim-

ming bath, alteration and reversal of the outfall of the drainage, and various matters, including fittings. Our correspondent has handed to us the following tabular statement, showing the cost of this establishment, in relation to its accommodation and cost of the baths, &c., in St. Martin's, as extracted from the reports made to both vestries.

	No. of Baths.	No. of Seats, (Wash-hub.)	Tables in separate ironing room.	House Laundry.	Swimming Bath.	Building and Ancillary.	Fittings and Furniture.	Cost of Establishment from adoption of Act.	Lease repaid and interest.	TOTAL.
St. Marylebone .	107	90	Yes.	1	2	£18,143 1 3	£1,892 17 7	£4,320 12 10	£1,554 17 2	£25,890 8 10
St. Martin's . . .	70	36	None	None.	None.	£19,520 4 0		£2,574 9 6	£1,501 9 2	£23,696 2 8

\* In this sum of 4,229*l.* 12*s.* 10*d.* is included 3,600*l.* for purchase of freehold site, while the St. Martin's is leasehold, at a rent of 82*l.* per annum.

#### RAILWAY JOTTINGS.

THE broad gauge is but a Lilliputian stretch of axle when compared with a new scheme in the *Railway Times*, proposed by Mr. E. E. Merrill, C.E., as a spanking passenger line, from London to Liverpool, with a 20-feet gauge, and a carriage mounted on 10 wheels and 200 feet long by 25 wide and 15 high, with a ship-shaped bottom or hold for luggage, and a double deck, with grand saloon and staircase leading to a grand promenade on the upper deck or roof fenced in by a railing 5 feet high, another large apartment for lower class fares, a ladies' room, refreshment rooms, office, &c. The locomotive to be of course of corresponding power, and to carry fuel and water for the whole journey, which is to be run in four hours, without stations, though with stoppages at platforms, and on a single line of rail, except at a crossing midway: four carriages 4 days to travel each way, starting from each terminus at same time, and passing each other at the crossing: fares, 1*d.* and 2*d.* a-mile. The line of rail is to be without turnings or curves of less than 4 miles radius, and the rails to be of suitable thickness, laid on longitudinal and transverse sleepers. The guard system would be just such an effectual one as is so much required during the transit of trains, the guards being able to move from place to place, and see that all is safe. The propounder thinks that the enormous saving in engines and carriages, clerks and porters at stations, &c., will induce capitalists to produce the money for such a passenger line. The lines in existence it is generously proposed to retain for luggage.—The marketable value of railway property, it is said, has fallen, since 1845, at least, 100,000,000*l.*—The Ballochmyle Viaduct, which carries the Cumnock extension of the Ayrshire part of the Glasgow and South-Western over the River Ayr, crosses this river at an elevation of 170 feet above its bed. The river is about 100 feet wide, and runs between high rocky banks, used as abutments to great arch. The viaduct consists of seven arches, the centre one being 180 feet in span, and the others 50, all semicircular. The arch-stones of the great arch are, on the outside, 5½ feet deep at the springing, and 4½ feet at the crown, but inside about a foot deeper. If Lord Melville's monument, in St. Andrew's-square, Edinburgh, were placed beneath the great arch, the head of the statue would not reach the crown of the arch. The stone is a close-grained red freestone. The centering was erected in four stages, each stage being proceeded with as the building advanced, and consisted of whole logs of Memel, placed one above another, and properly connected at each stage with cross ties and diagonal braces, and well secured by bolts, &c. The quantity of timber used was about 50,000 cubic feet, and of iron about 6 tons. The work was completed within three years and four months from its commencement. The number of men employed averaged about 400. Messrs. Ross and Mitchell were the contractors, and Mr. Fulton, superintendent. Not a single serious accident occurred during the execution of the works. The quantity of stone used was about 530,000 cubic feet, and the total cost was about 41,000*l.*—The iron bridge to cross the Shannon at

Athlone, for the railway to Galway, will be made by Messrs. Fox and Henderson, of Birmingham. Over 1,000 tons of iron will be used in this structure, which will be 700 feet in length. The Kish Bank Beacon will also be constructed by Messrs. Fox and Henderson. This work is to be placed on iron tubes, sunk in the sand by Dr. Pott's patent pneumatic process. This same process is to be used at Athlone for supporting the railway bridge across the Shannon.—A correspondent of the *Swansea Herald* suggests the planting of the embankments, cuttings, and spoil banks of the South Wales Railway with forest trees and coppice wood. He calculates that they would yield at least 10*l.* per acre per annum after twenty years' growth. The seeds sown of old by THE BUILDER are ever springing up anew, as we hope at length to see these plantations by the way side, both for adornment and for profit.

#### WEAKNESS OF MODERN ART.

WERE an ancient Greek or Roman to rise from his tomb, and, after surveying the wonderful progress of modern civilization, were he to turn his eyes upon our public buildings, to contemplate the prevailing spirit of our modern fine arts, he certainly would be amazed at our progress in all that is called useful, and feel something like pity for our efforts in all that is ornamental.

After studying our sublime theology and our mighty achievements in science and literature, he would be surprised to see us obliged to wander back to his own dark days to draw our ideas of the beautiful and the grand from them. Can our artists and architects find no nobler subjects with which to ornament our public buildings than the disgusting amours or the brutal wars of the heathen gods, with figures of Neptune, or Bacchus, or Satyrs, the last two the personification of sensuality? The ancients followed and made the most of the lights they had, and drew their inspiration from the highest sources then known to them. Cannot we follow their example, not in the letter but in the spirit? Beat about the bush as we may, we must come to the conclusion that the only true end of art is *utility*, and that utility the highest of all, the ennobling of human nature. The fine arts of the ancients were the products of imagination and fancy alone; ours must be the result of the higher and the purer faculty of reason, which is the grand distinction between ancient and modern civilization. The artist, the architect, and the builder must drink of the spirit of the times before they can be appreciated by those who live in these times; they must identify themselves with the grand idea of the age, progress,—increasing, universal, progress.

The ancients looked to Heaven in their art, but it was a Heaven of their own imagining: we also must look to Heaven, not theirs, but that of Christianity; and till art be imbued and inspired by the spirit of the latter it will fail in its mission, as a powerful civilizer of mankind. We are making gigantic strides in science and literature. Why? Because they operate directly and immediately for good—they supply our material wants; but art lags behind—it turns its back upon the wants of the present, and is groping among the relics of the past instead of taking the place that properly



belongs to it in the battle of knowledge with ignorance, Christianity with heathenism, civilization with barbarism.

Whatever tends not to good is useless; whatever is useless it is a waste of time to pursue. The highest of all good is that which purifies and exalts the soul, and this is the proper duty and use of art, and till such be the purpose and earnest aim of the artist his talents will be misapplied.

Art, like literature, ought to be the exponent of the ideas, and aspirations, and a stimulant to the further efforts, of the age: may we ask if art fulfil these duties in these days of the steam-engine, the press, railroads, ragged schools, and universal education?

#### ST. MARY'S CHURCH, SHERBORNE.

ST. MARY'S, Sherborne, now in course of restoration, has several peculiarities of structure which it is desirable to record. The original edifice, of which much still remains, was probably erected in the commencement of the eighth century, by Aldhelm, the first bishop of the see, and nephew of King Ina, by whom it was made an episcopal see: here were buried two grandsons of Egbert, namely, Ethelbald, king of the West Saxons, and Ethelbert, his brother. The south porch (now in a ruinous state), south transept, the whole of the lower part of the tower, and some considerable portions of the north and east external walls of the Romanesque church remain.

The Perpendicular church, commenced in the early part of the reign of Henry the Sixth, and incorporated with the original one, and an Early English chapel which stood at the east end, on the site of King Edward the Sixth's Free-school, was destroyed by fire before its completion: in a broil between the monks and townsmen a priest of Allhallows shot a shaft of fire into the temporary thatched roof used to protect the workmen during the erection of the groined ceiling, which quickly destroyed the whole fabric (Leland). The parts eastward of the tower being least injured, as may be seen by the firemarks extending upwards above the springing of the clerestory windows (the half-burnt tracery of which is still retained) was immediately restored by Wm. Bradford, who was then abbot. The remainder of the church, together with a chapel dedicated to "Our Lady of Bowe," afterwards a parish church, but now taken down, was rebuilt between the years 1475 and 1504, by Peter Ramsam, his successor: of the restoration of the upper part of the tower nothing is known, but from its style, which corresponds with Milton Abbey Church, it is probably but a few years later than the west end.

The structural peculiarities most remarkable are the bringing the Romanesque piers supporting the clerestory walls into harmony with the perpendicular work, the absence of flying buttresses in the western part of the church, and the substitution of Taverne, or calc tufa, for the heavy "Ham" stone elsewhere used in filling in between the ribs of the groined ceiling, all evincing the great amount of thought and constructive skill brought into play by the mediæval architects and artisans.

The piers originally with engaged shafts around them, as may be seen under the tower and in the south transept, were dressed down and panelled in narrow trefol-headed panels, about 3 feet in length, which extend to the springing of the arches. A single panel of similar form and size has also been cut in the side of one of the round Romanesque pillars of south chancel.

Owing to the action of the fire on the mortar used in erecting the first perpendicular church, and the removal of several chapels and buildings attached to the abbey and adjoining the church, the flying buttresses erected by Abbot Bradford appear to have had an injurious effect, causing the external walls of the north and south aisles to spread considerably, in which movement the clerestory walls participated to such an extent as to produce a depression of the groined ceiling, amounting to 7½ inches. To obviate this, Abbot Ramsam built the western end without flying buttresses, and substituted for the "Ham," or "Ham-hill" stone, elsewhere used in filling in between the groining of ceiling, a light and spongy, yet hard and durable stone, called

Tavertine, or Calc Tufa, imported from Italy (now being replaced by Ham stone). By these precautions this part of the building is in a much better state than the remainder. The bells of this church deserve a passing note. The principal one, a gift of Cardinal Wolsey, is 5 feet 1½ inch across, weighs 6,000 lbs., and is, consequently, the fourth largest in England. On it is inscribed the following legend:—

"By Wolsey's gift I measure time for all,  
To mirth, to grief, to church, I serve to call."

THOMAS AUSTIN.

#### STATE OF ARCHITECTURE IN IRELAND.

LORD DUFFERIN in his speech at the Belfast School of Design the other day said,—There is one other way in which these schools will, I think, be found a great assistance,—I mean in diffusing more correct notions of architectural beauty. Now, if there be one country more than another where this art has been neglected, or rather abused, it is Ireland. In fact, Irish architecture is quite a phenomenon. Disdaining the result of past experience, our architects have determined to sacrifice everything to originality, and—the sacrifice has been complete—their style has, at all events, the advantage of being unique. It is not Grecian, it is not Roman, it is not Gothic,—in fact, debased Hibernic is the best name we could affix to it. Disfiguring the surface of the country, there are innumerable structures, churches, castles, mansions, public buildings, all vying with each other in deformity. I do not know where I would sooner send a pupil in the science to study; for here he would find ready to his hand specimens of the violation of every rule. And mind, it is not in consequence of a restrained expenditure that this has arisen. I do not complain that our buildings are paltry. On the contrary, their pretensions are enormous; and, besides, it is upon its proportions, and not upon its embellishment, that the symmetry of a structure depends. And immense sums of money have been spent, particularly in the case of church building, in the multiplication of ornaments, which, instead of being ornamental, are nothing but cumbrous excrescences. So universally is this the case, that it has become a general rule. It is a great pity that this should be the case. What nobler, what more lasting possessions has a nation than its architectural structures? What historical associations gather round them; and, when all else has been blotted out, what eternal witnesses do they remain of faded glories and unrecorded life! Thrones, sceptres, governments, peoples, languages, may be swept along in the rolling surges of time, yet there are left behind monuments of a period anterior to antiquity; and we, the heirs of the latter ages, may still wonder at the palaces of Babylon, and the temples of Egypt—the dwelling-places of forgotten kings, and the shrines of departed gods.

#### Books.

*The History of Ancient Art.* Translated from the German of JOHN WINCKELMANN, by G. HENRY LODGE. Vol. II. Boston, 1849. James Munroe and Co.

It is interesting to observe the rapid rise of America in many of the more elevating and ennobling pursuits of leisure and taste. Engaged, as it were but yesterday, exclusively in the rough hard work—even though itself a great and noble one—of rendering their new world habitable,—already do we find this youthful nation of nations occupying leisure moments, not a few, in the exercise of far higher faculties than those required in roughing it in a rude unpolished country, or in "beating all creation" in Yankee barter or in the more mature but not more knowing traffic of established commerce. No stronger or more significant evidence of the cultivation of an elevated taste in America, however, has perhaps ever presented itself than this translation of Winckelmann's work and the venture of its publication,—based, as the latter would assuredly be, on something like a longheaded calculation of an adequate number of readers of such art-works as this of

our cousin-German, and of admirers of such art as that of ancient Greece of which it treats. The translation itself, however, was undertaken *con amore*, and without ulterior views of profit, other than such a stimulant itself presented in the cultivation of the mind and taste of the translator. "Encouraged," however, as he remarks, "by the growing love of art in that country, stimulated as it has been by a few admirable works from the hands of native artists, and impelled from my admiration of this noble masterpiece, by a desire of making it more generally useful in an English version, I at last determined to take the responsibility of submitting one volume to the judgment of the public. I have chosen the second, because it treats of Greek art, the monuments of which are far more numerous and interesting than those of any other nation, and because it presents a systematic exposition of the principles by which the author supposed the Greek artists to have been governed in the conception and conformation of those works which still stand the noblest creations of artistic genius, and about which the students and the lovers of beauty, grace, and majesty still gather with admiration and reverence. Esteeming this volume the most interesting and important of the series, I have not hesitated to offer it first for the perusal of the American public."

The volume itself is handsomely got up, and contains not only copies of Winckelmann's own series of illustrations, but a selection from other sources, one of the author's own works inclusive; and, on the whole, both publishers and translator merit high commendation for the manner in which so choice a volume has been placed in the hands of our transatlantic brethren.

#### Miscellaneous.

THE TAX ON LIGHT AND HEALTH.—A correspondent suggests that it might hasten the latter end of the obnoxious window-tax were we to recapitulate the arguments for its abolition by which it has already been so often assailed in *THE BUILDER*; but really the force of these arguments and reasons is now so universally admitted that no one requires to be reminded of them. Even the guilty cognomen—"light and health tax," by which we first of all dubbed it, carries its condemnation on the face of it, and by its general adoption in the columns of our newspaper contemporaries, and now in the Houses of Parliament themselves, comprehends a weight of argument in few words, that is doing its work, we believe, effectually, though silently, and will continue so to do until its doom be sealed, as already it virtually is, though not yet in formal reality. Still we shall not relax. A deputation was to attend the Chancellor of the Exchequer this day (Friday).

WHOLESALE DESTRUCTION OF GLASS.—Another fierce storm has passed over a portion of the empire, but in this case was seemingly confined to Ireland. The wind on Thursday week rose suddenly to a hurricane in the country north-west of Dublin, overthrowing trees, and even roofs, chimneys, and buildings, and, in the midst of lightning and a deluge of rain, a storm of hail occurred, in which masses of ice as large as grapes raked a line of country extending at least some 40 or 50 miles in length, and 3 or 4 in breadth, and, so far as we yet learn, apparently from north-west to south-east, and right through Dublin city, in the south-eastern vicinity of which it seems to have exhausted itself. On a rough calculation, 30,000l. worth of glass has been destroyed in Dublin alone, and glaziers there are in consequence just now at a high premium.

EYAM CROSS.—An exact *fac-simile* of this relic of antiquity is about to be made for the Duke of Devonshire, who intends placing it in a conspicuous part of the park at Chatsworth. His Grace, accompanied by an eminent sculptor, visited Eyam a week or two ago, when they obtained leave of the rector to have the model taken.

NEW CHURCH IN MARYLEBONE.—An appeal has been issued for aid in erecting a new church for the poor of Marylebone, on a site procured, and capable of accommodating 1,500 persons, two-thirds free, at a cost of 12,000l. for erection and endowment.



**PROJECTED WORKS.**—Advertisements have been issued for tenders, by 13th May, for the erection of a farm-house for Mr. S. Capron, Southwick, near Oundle, Northamptonshire; by 8th May, for the erection of a chapel at Newport, and for schools attached, &c., on plans furnished by Messrs. W. G. and E. Habershon, 38, Bloomsbury-square; by 27th May, for the erection of a Lunatic Asylum for Bucks, at Stone, on plans by Messrs. Wyatt and Brandon, Architects, 77, Great Russell-street, and for supplying cast and wrought iron columns, sashes, joists, and roofs for same; by 11th May, for the erection of a new aisle to the parish church, at Roade, Northamptonshire, planned by Mr. E. F. Law, of Northampton, architect; by 5th May, for the execution of certain works in building a sea-wall at Radipole, planned by Messrs. Jones and Johnson, architects, of 11, Fumival's-inn; by 1st May, for the erection of a church at Radipole, Weymouth, designed by Mr. Talbot Bayly, architect, of 26, Golden-square; by 2nd May, for repair of gas columns, lanterns, burners, &c., and for painting and lighting with gas, for the commissioners for lighting Camden-town; by 1st May, for building a school-room and residence for the corporation of Sutton Coldfield; by 30th April, for the construction of 890 yards of road, including drains, &c., for Mr. John Townsend Birkendale Vere, Upperthorpe; by 30th, for repairing Swallow-hill-bridge, at Darton, for Mr. Hartley, bridge surveyor, Pontefract; for the supply of paving, granite, flint, Kentish rag, and gravel, for the board for repair of highways, Saint Mary, Newington, Surrey; by 7th May, for supplying the Navy Storekeeper-General, Somerset-place, with soft melting pig-iron for Woolwich, Chatham, and Portsmouth dockyards; by 1st May, for the intended works at Hartburn-bridge, for the justices of the peace for Northumberland, at Morpeth; by 9th May, for the erection of baths and washhouses at Greenwich, designed by Mr. Robert Ritchie, of No. 8, Bexley-place, Greenwich, architect; by 2nd May, for the erection of a telescope gasholder, 100 feet in diameter, and a condenser, with pipes, &c., for the Corporation Gas-works, Manchester; by 7th May, for the erection of the parochial schools and residence at Wribbenhall,—Mr. Robert Robinson, of Stourbridge, architect; and by 30th April, for the erection of a rectory-house, with stabling, &c., at Blendworth, Hampshire,—designed by Messrs. Habershon, of Bloomsbury-square, architects.

**FALL OF SUSPENSION-BRIDGE AT ANGERS.**—A dreadful loss of life has taken place by the fall of the bridge of the Basse Maine, in France, as most of our readers may have already heard. We are not aware that any scientific inquiry has yet been made into the precise manner in which the bridge failed and fell, but it is said, that in consequence of a body of troops having passed along in close column, in place of with proper precautionary division, the suspending rods at first gave way on one side, when a rush was made to the other side; the rods of that side then also broke, and the whole floor of the bridge fell, and with it several hundreds of the troops, a great part of whom were either wounded or pierced through with the bayonets and even the guns of their fellows, or drowned. The bridge was built about twelve years ago, and was repaired at a cost of about 36,000*l.* only twelve months since. We should be sorry to see our London suspension-bridge exposed to such a test of the strength of its rods.

**IMPROVEMENT OF THE NATIONAL GALLERY.**—In the event of the Royal Academy giving up their rooms to the National Gallery, would it not both be desirable and practicable to make one uniform and connected building of it, by doing away with the present entrance to the barracks, and letting the troops pass under an archway at the level of the basement, and from thence come out into Trafalgar-square by an inclined plane? The farthest entrance near St. Martin's Church might be done away with altogether, considering the little use it is of to the public.—W.

**CONVERSAZIONE TO ARCHITECTS' INSTITUTE.**—Earl de Grey opens his house to the members of the Institute of British Architects on Friday night next, and has invited many distinguished persons to meet them.

**THE PROPOSED IMPROVEMENT ROUND ST. PAUL'S.**—At a meeting of the City Commissioners of Sewers, on Tuesday, a letter was read from the chapter clerk of the cathedral, declining to agree to the projected clearance of the space adjoining the cathedral. The main objection of the dean and chapter just came to this,—that as the entrances from Cheapside and Ludgate-hill are still very narrow and obstructive to traffic, so must the space around St. Paul's remain in a like condition. The City Commissioners, however, have determined not to let the matter drop here, and have given directions to their Committee to adopt further measures for accomplishing the end in view, by an appeal to the highest authorities.

**THE ARCHITECTURAL ASSOCIATION.**—An ordinary meeting was held on Friday last, 19th inst., at Lyon's Inn Hall; Mr. Creeke in the chair. A brief discussion took place relative to the admission to the forthcoming exhibition of architectural drawings in August and September. The chairman stated that the Association had resolved to subscribe 1*l.* towards the National Exhibition in 1851. Mr. Dudley then read a paper on "Nature and Art." The point principally dwelt upon was, the importance of designing with reference to the site on which the building is to be erected. That the ancients well considered this there could be no doubt: the buildings of the Egyptians and mediæval remains fully attested this fact. Furness Abbey was adduced as an example where the scenery and building repose together in harmonic design. An interesting discussion followed, in which the introduction of colour was particularly recommended, and the good effect which would be produced by gilding the dome of St. Paul's was remarked. The removal of the duty off bricks was alluded to as a means of extending their adoption for ornamental purposes. The practice pursued by Wren, of lavishing his ornament and displaying his ingenuity where it could be most appreciated, as may be seen by his churches, especially Bow, was touched upon.

**ELECTRO-TELEGRAPHIC PROGRESS.**—Mr. A. Mitchell, says a contemporary, has recently exhibited a newly-invented apparatus for transmitting messages and news by means of one wire. In exterior appearance this telegraph is not unlike a diminutive upright piano-forte. It contains a key-board, with as many keys as there are letters in the alphabet, besides five other keys for pre-arranged signals. Above this key there is a segmental dial, on which is painted the alphabet, a set of numerals, &c. On touching any of the keys on the key-board, the electro-magnetic circuit is established, and a finger points to the corresponding letter, figure, or word on the dial, at the stations connected in the circuit. Thus, by keys having a letter engraved on each, a child able to read and spell could transmit a message, and a child who can read and write could receive it. Mr. Mitchell states that the apparatus generally in use on British railways costs in construction about 150*l.* a-mile; but that he could fit up the new instrument at 30*l.* to 35*l.* per mile.—The submarine telegraph between Dover and Calais is to be opened to the public, it is said, on 4th May, the anniversary of the proclamation of the French Republic.—A French commission, says the *Mining Journal*, "has been appointed to examine into the merits of the magneto-electric telegraph invented by Mr. Henley, with a view to its adoption by the French Government. A great saving, it is expected, will result from its adoption, as not only the expense and trouble of the voltaic battery are entirely dispensed with by the substitution of magnetic electricity, but wires of one quarter the usual weight are found sufficient for the purpose. The instruments tried in Paris, though very small, are said to be fully capable of working at least 1,000 miles, and the importance of this can readily be estimated, when it is known that for a distance of 300 to 400 miles only from five to six of the twenty-four cell voltaic batteries are required to work the telegraphs generally in use in England."

**BURNING THE DEAD.**—"The Pioneer Metropolitan Association," for promoting this practice, are to hold a public meeting "at the City of London Mechanics' Institute, Gould-square, Crutched-friars," on Friday, 3rd May.

**DISFIGUREMENT OF LONDON-BRIDGE.**—In the Court of Common Council, the other day, great objections were made to the brick building now being raised on the Surrey side of London-bridge, near the Bridge House Tavern. We don't wonder at it. It is an ugly pile, sadly in the way.

**PROFESSIONAL REMUNERATION.**—In the case *Fowler v. Drake*, reported by us a short time ago, a rule for a new trial has been granted to the plaintiff, on the ground of the improper rejection of certain evidence, and also because the verdict was against the evidence in the cause.

**HOXTON RAGGED SCHOOLS** have been opened. The building cost 750*l.* We are told that it is in the Tudor style of architecture, with stone dressings. Its extreme length is 70 feet, breadth 20 feet, and the height 45 feet, and it is capable of accommodating 600 children, with offices for master and matron, &c.

**SURVEYING BY MACHINERY.**—A machine, it is said, has been invented in Philadelphia, which, if trundled over a tract of country, will give a more accurate survey for a railway, altitudes, depressions, and space included, than can be made by any other method, at the rate of fifteen miles a day.

**SURVEYORS' TENDERS, CORK.**—Proposals delivered to the guardians of the Cork Union, for a coloured map of the union; the town-land survey, 6 ins. to the mile, to be reduced to 2½-in. to the mile:—

Deane, C.E. ....	£36	0	0
Bernard, C.E. ....	35	0	0
Deasy, Surveyor ..	24	10	0
Klein, C.E. ....	19	19	0
Jones, Architect ..	10	0	0

## TENDERS

For building a new college with residence attached at St. John's-wood; Mr. W. Emmett, architect:—

	College.	House.	Total Amount.
Hayward and Nixon ..	£11,500	£2,406	£13,906
Little and Son ..	11,400	2,350	13,750
Jay ..	10,355	2,400	12,755
Ripley ..	10,210	2,235	12,475
Carter and Ellis ..	10,105	2,205	12,310
Ashby ..	10,050	2,220	12,270
Piper ..	9,800	2,116	12,006
Trego ..	9,934	2,018	11,952
Myers ..	8,775	1,903	10,676

For new vicarage house at Pilton, near Hitchin; Mr. F. Pouget, architect:—

Howard, London ..	£1,193	0	0
Bates, Stevenage ..	1,147	10	0
Geves, Hitchin ..	1,074	0	0
Kirby and Co., Tottenham ..	1,065	15	0
Butterfield, Hitchin ..	1,045	0	0
Wood, Islington (accepted) ..	1,034	0	0

For national schools in the Trinity Church district, Margate; Mr. Cawley, architect:—

Jenkins ..	£1,045	0	0
Duckett (accepted) ..	983	0	0
Fisher and Son ..	945	0	0

## MEETINGS OF SCIENTIFIC BODIES

To be held during the ensuing week.

TUESDAY, April 30.—Institution of Civil Engineers, 8 p.m.

THURSDAY, May 2.—Royal Society, 8½ p.m.; Society of Antiquaries, 8 p.m.

FRIDAY, May 3.—Archæological Institute, 4 p.m.; Architectural Association, 8 p.m.

## BUILDINGS AND MONUMENTS,

MODERN AND MÆDIEVAL;

Being Illustrations of the Edifices of the Nineteenth Century, and of some of the Architectural Works of the Middle Ages.

By GEO. GODWIN, F.R.S.,

Fellow of the Institute of Architects; Corresponding Member of several Societies.

Part VII. of this work, price 2s. 6d. will be published on Wednesday next, containing views of the Royal Lyceum Theatre; Church of the Immaculate Conception, Farm-street, Grosvenor-square; the Church of La Vilette, Paris; St. Augustine's College, Canterbury; St. Peter's Hospital, Wandsworth; the Printers' Almshouses, Wood-green, Tottenham; Custom-house, Rouen; the Chapter-house, Chester Cathedral; with descriptive letter press and numerous details.

Part VIII. will be published June 1, and will complete the work. To prevent disappointment, the names of parties intending to take the work when completed should be sent forthwith.

To be had at the Office of "The Builder," 2, York-street, Covent Garden, or, by order, of any Bookseller.











# The Builder.

No. CCCLXXVIII.

SATURDAY, MAY 4, 1850.

**W**E have, as our readers know, a strong conviction of the advantages which have resulted from the operations of the Art-Union of London, and the good it is yet to do. On Tuesday, the 30th ult., Drury-lane Theatre was filled to receive the report of the council and witness for the fourteenth time the distribution of the amount subscribed for the purchase of works of art.

The Duke of Cambridge, President, took the chair precisely at twelve o'clock (amidst more cheering than we need talk of), and said,—“Ladies and gentlemen, I have great pleasure in meeting you on the present occasion, because there is nothing which can disturb good feeling amongst you. You may recollect that, last year, some differences had arisen between the Government and the society relative to the selection of pictures by the prizeholders. That difference, I am happy to say, is now all over, the question having been satisfactorily settled. I think that that information cannot prove otherwise than highly gratifying to you; and I have the further pleasure of knowing that the prints which have been distributed among the subscribers have given general satisfaction. There is only one other point to which I will allude, but that is also of a highly gratifying nature, viz., the fact that the subscriptions for the year have considerably increased. And now, ladies and gentlemen, having called your attention to these three heads, I feel that I have nothing to do but to ask the honorary secretary to read the report.”

Mr. George Godwin, F.R.S., then read the following

## REPORT.

In the report which the council laid before the last general meeting, it was stated that subscribers for the ensuing year would receive an illustrated volume, and an impression of a fine engraving then in progress. The council afterwards found, however, that it would be late in the present year before these works could be completed, and being fortunately enabled to obtain a pair of plates, “The Smile” and “The Frown” engraved by Mr. C. W. Sharp and Mr. W. D. Taylor, from pictures by T. Webster, R.A., and a series of designs by D. Maclise, R.A., illustrating Shakespeare’s “Seven Ages,” they determined to appropriate these to the subscription of 1850, and to postpone the issue of those first alluded to. “The Smile” and “The Frown” being finished, they were enabled to deliver the prints on payment of the subscription, and so to obviate an objection which had been raised on other occasions. The selling price of the pair of prints alone, it may be mentioned, would have been double the amount of the annual subscription. The illustrations of the “Seven Ages,” to be received in addition to the above, have been etched on steel-plates by Mr. Edward Goodall, and are now at press.

The result of this arrangement is, that the subscriptions for the year amount to the sum of £11,180. 6s., being an increase of 788l. on the sum subscribed in 1849.

Impressions from the engraving of “Sabrina,” due to the subscribers of that year, have been distributed. Each subscriber is further entitled to an impression from a fac-simile engraving, after the premiated design in *basso-relievo*, by Mr. Hancock, “Christ Entering Jerusalem,” which is at press, and will soon be ready for delivery.

Subscribers for the ensuing year will receive an edition of Goldsmith’s “Traveller,” con-

taining thirty illustrations on wood, and the choice from two engravings—“The Villa of Lucullus,” by Mr. Willmore, after Mr. Leitch, and the “Burial of Harold,” by Mr. Bacon, after F. R. Pickersgill, A.R.A.

The illustrations of “The Traveller” are by Messrs. Andsell, Armitage, Absolon, Corbould, Dodgson, Duncan, Frost, A.R.A., Gilbert, Hulme, F. Goodall, Harding, John Martin, Huskisson, Leitch, Parrott, Stanfield, R.A., F. Taylor, Caye Thomas, Topham, Wehnert, and E. M. Ward, A.R.A.; engraved by Corbould, Cooper, Dalziel, Green, Jackson, Linton, Mason, Martin, W. Measom, Thompson, Vizitelli, Whimper, and Williams.

The whole are nearly ready for press. “The Crucifixion,” after Hilton, promises to be a fine work. The size and costliness of this engraving, and the risk which would attend electrotyping it, have led the council to decide on taking from it only a comparatively small number of impressions, and issuing them as prizes in some future year.

Engravings are in progress from “Richard Cœur de Lion pardoning Bertrand de Gurdoun,” after Mr. Cross, and “The Piper,” after Mr. F. Goodall. The porcelain statuettes, bronzes, and casts in iron, awarded in previous years, have all been produced and delivered to their respective owners. In continuation of this portion of the society’s operations, the design in *basso-relievo* by Mr. Armistead, “The Death of Boadicea,” has been produced in bronze by Messrs. Elkington: twenty repetitions of this design, so executed, will be distributed to-day. The council have, further, selected an antique Tazza, No. 829, in the Vase Room of the British Museum, the decoration of which is known as the “Quarrel of Agamemnon and Achilles,” to be produced in cast-iron for a future year. Hereafter they contemplate producing, in bronze, reduced models of the statues of Hampden, Clarendon, and Falkland,—executed for the new Palace of Parliament at Westminster.

The medals commemorative of Wren have been distributed, and the council may point to the reverse, by Mr. B. Wyon, showing St. Paul’s Cathedral, as one of the most successful medallic representations of a building ever executed. An accident to the dies in hardening made new ones necessary, as was the case some time since with another of the society’s medals, and the council are led again to direct attention to the importance of discovering some means of lessening the chance of failure to which dies are now unavoidably subject. The Inigo Jones medal, by Mr. Carter, is making satisfactory progress. The reverse will show the Banqueting-House, Whitehall. The society’s medallic series, the object of which is “at once to give some scope to the genius of our countrymen in this important branch, render a just tribute to departed artists, and illustrate the history of British art,” now comprises Reynolds, Chantrey, Wren, Hogarth, Flaxman, and Inigo Jones.

In continuation of the series, a medal of Bacon, the sculptor, has been commissioned for an ensuing distribution. Hereafter series of these medals will form valuable and interesting prizes.

The council would always keep in view the disinterested and high-minded purpose for which this association was formed; namely, to diffuse far and wide throughout the empire a love of art; to raise as much as possible the standard of perfection for the productions of our native artists; and to excite in the public mind a proper idea of the utility of the artist’s functions. With this last point in view the council are considering the advisability of enlarging the scope of the medallic series, so as to include distinguished living artists, and thus form a new incentive to exertion, by affording the prospect of a widely-spread public acknowledgment of eminence; an incentive to struggles which not only give glory to the artist, but add to the glory of his country. The number of those who know how to estimate art is much greater than it formerly was. The gentleman, who, when recently told that the price of a picture he admired was fifty guineas, asked seriously if “that sort of colour was particularly dear?” as he had “painted all his front palings for fifty shillings,” does not represent a very large

class. But there is still a want of proper appreciation of art on the part of many.

At the last distribution of the society’s funds, the sum of 3,205l. was allotted for the purchase of works of art by the prizeholders themselves. With this, 91 paintings and drawings were purchased, ranging in value from 300l. to 10l.

By the permission of the Society of British Artists, these works were exhibited in the Suffolk-street Galleries for four weeks gratuitously, and were visited by an immense number of persons.

Sculpture was not purchased by any of the prizeholders, and the council feel it to be their duty again to direct attention to this great art, by reminding prizeholders that they will be at liberty to commission the execution in marble of any model exhibited in the public galleries, the price of which, if so executed, was left with the keeper at the opening of the gallery.

The prizes after exhibition were sent to various parts of the United Kingdom, to America, and the Colonies. Some that went to the north-west of England led to the formation of a local exhibition, aided by the neighbouring proprietors, which produced a considerable sum for the charities of the town, and was afterwards opened at a reduced charge to the labouring classes, who visited it in large numbers.

The painter of one of the pictures sent to New York, in the United States, received a letter shortly after its arrival there, requesting him to accept a commission for another picture. The writer said, and it is this more essentially which leads to noting the fact,—“There is an awakened feeling in this country (America) for all that relates to art, but it is, of necessity, still in its infancy, and the best efforts of the older artists among us, appear to great disadvantage by the side of those of the English school. Your painting is considered quite a gem, and has attracted no little attention among the lovers of high art hereabout.”

Of this awakened feeling in America, the council have received with gratification other proofs. There are now four Art-Unions there. One, “The American Art-Union,” established in New York in 1838, has this year 16,000 subscribers, contributing 80,000 dollars; and writers are beginning to ask there, whether the millions of dollars spent on the military establishment of the country might not have been more profitably used for the promotion of the fine arts,—the arts which humanize and elevate, and induce a sympathy with what is great and good. Well has the poet said—

“That beauty, good, and knowledge are three sisters

That dost upon each other, friends to man.”

The council have to regret the loss, by death, of an early and esteemed member of their body, John Noble, Esq., F.S.A. Other vacancies have been caused by the retirement of Edward Wyndham, Esq.; T. P. Matthew, Esq.; and Henry Thomas Hope, Esq., M.P.—S. M. Peto, Esq., M.P.; and the Rev. Dr. Mortimer, head master of the City of London School, have been elected to fill two of the vacancies thus created.

The reserve fund now amounts to the sum of 3,787l. 13s. 10d. It has been aided by the earlier payment of subscriptions, on the amount of which interest has been obtained.

The following is a general statement of the receipts and disbursement: a more detailed account will be published hereafter.

Amount of subscriptions .....	£11,180	8	0
Allotted for purchase of pictures, statuettes, medals, &c. ....	5,073	0	0
Cost of engravings and etchings of the year .....	3,253	4	3
Cost of report, printing, advertising, rent, &c., and reserve of 2½ per cent. ....	2,854	3	9
	£11,180	8	0

The accounts have been audited by three members of the finance committee, and by two gentlemen from the body of subscribers, Mr. St. Barbe and Mr. Dover, to whom the thanks of the council are offered.

The sum of 4,260l. appropriated to the pur-



chase of works of art by the prizeholders, will be thus allotted:—

	Each.
20 works, of.....	£10
16 ".....	15
14 ".....	20
12 ".....	25
12 ".....	40
10 ".....	50
6 ".....	60
6 ".....	70
6 ".....	80
3 ".....	100
2 ".....	150
2 ".....	200

To these the council propose to add—

- 198 sets of proofs, in portfolios, of the designs, in outline, illustrative of "The Pilgrim's Progress," the Society's "Cartoons;" "Gertrude of Wyoming;" or "The Castle of Indolence;" 307 impressions of "Queen Philippa interceding for the Burgesses of Calais;" not yet finished. 307 lithographs of "St. Cecilia;" 30 medals in silver, from the dies already completed, at the option of the prizeholder. 50 statuettes of "Innocence," "Narcissus," or "The Dancing Girl Reposing;" and 20 bronzes, "The Death of Boadicea;" making in the whole 1,021 works of art as prizes.

The total sum appropriated to the purchase and production of works of art, including the cost of the engravings and outlines, is 8,326l. 4s. 3d.

The bronzes will be allotted to the first twenty names drawn consecutively at the close of the general distribution: the statuettes to the next fifty similarly drawn; the medals to the next thirty; and the proof outlines to the following 198. The proof engraving of Queen Philippa will be appropriated to the names standing fiftieth in the list succeeding that of each prizeholder in the general distribution, and of each of those entitled to a set of outlines. The lithographs will be appropriated to the names standing in a similar manner one hundredth succeeding those above-mentioned, provided such name have not already received a prize to-day. In this case the prize will fall to the next succeeding name. Notice will be sent to the subscribers entitled to the statuettes, proofs, &c., in the course of two days; the other prizeholders will receive intimation of the result by to-night's post.

The council, on the part of the members, offer their warmest thanks to the local honorary secretaries for their continued and zealous assistance. The council were anxious to carry out their intention of presenting some fitting testimonial to those local secretaries who have greatly exerted themselves to advance the objects of the society. They found that the plan adopted as an experiment last year of presenting a porcelain statuette to each secretary who forwarded forty or more subscribers, was too unequal in its application, and they therefore resolved for the present year to offer one of the statuettes to each local secretary who forwarded subscriptions, in addition to his own, to the amount of one for every five hundred inhabitants of the place for which he acts, or one in every one thousand, in places containing twenty thousand inhabitants or upwards, it being understood that this arrangement would not apply to any one sending less than five names.

The council are anxious to increase the list of local secretaries by the appointment of gentlemen to that office in towns and dependencies where the society has not, at present, any representative.

The society has admittedly had great effect in directing attention to the arts of design, inducing the public to take an interest in their progress and acquire a knowledge of their principles, and it is thus gradually cultivating public taste and enlarging the sphere of enjoyments, while it provides funds for the assistance of an important profession. To make a knowledge of art general is a sure way to encourage artists and develop talent. When excellence in art is universally understood, appreciated, and called for, it will be found. When we can say in England—as was justly said of the Athenians, by one of their own great writers—"that the common people are the most exquisite judges of whatever in art is graceful, harmonious, or sublime," then shall we have our artists producing works which posterity will not willingly let die. We would

have the enjoyments of art not a luxury for the few, but a necessary within the reach of all. The cultivation of a pure taste is not incompatible with rigorous attention to the most mechanical operations of existence. We may strew with bright flowers the banks between which the stream of life runs, not merely without impeding its progress or lessening its usefulness, but with evident and great advantage. Art may give us fine ideas of natural things, a noble turn of thought, most pleasurable and profitable emotions:—

"Who may behold the works of Raphael's hand,  
And feel no mountings of the soul within,—  
Find not his sphere of intellect expand,  
And the creations of the pencil win  
His thoughts towards heaven,—to which they  
are akin!"

Our great corporations, as your council ventured once before to urge, emulating the town-councils of Pisa and Florence in years gone by, should enlist the powers of art to teach as well as adorn, and so aid in developing them. They might thus make some return to posterity for the advantages they received from their predecessors.

The response made by the rising artists of Great Britain to the invitations of the Royal Commission, was most honourable to themselves and to the country, showing the possession of power which by many was scarcely suspected. This is of little avail, however, if no opportunity is to be afforded them of profitably using it. We should not stimulate the student into a new course, and then withhold the promised crown. It will be a national discredit if the art, studied to meet the national call, be not employed for national purposes. The new Palace at Westminster will be a permanent but limited school. Let wealthy public bodies and corporate towns aid in calling into operation the talent which our artists have shown they possess.

As respects the connection of design with manufacture, the wedding of Art to Labour, constantly kept in view and adverted to by your council in their reports, England has not been just to herself, and holds, in consequence, a less distinguished place, as compared with some other nations, than should be the case. Until recently no opportunities have been given to the people to educate the eye, and acquire a knowledge of art: the public buildings have been closed to them,—no accessible collections of works of art provided,—no means of instruction afforded,—and now they are in a degree reprov'd, by comparison, for an inferiority they had no means of preventing. The door was shut against them, and they are blamed for not having gone in.

Let facilities for the study of fine forms and the cultivation of the arts of design be afforded to our countrymen, and there need be no fear as to the result in coming struggles. Drawing, which is as easy of acquirement as writing, should be taught as a matter of course, even in our national schools; and then the pupils in our schools of design would go there prepared to commence their real work, instead of, as now, ending where they ought to begin. Even in a financial point of view this matter is of great importance,—enormous sums being annually paid by our manufacturers to foreigners for designs, sums which might otherwise be applied to set in action British skill and industry, and further develop the resources and powers of the nation.

The council may be excused for these observations, because of their evident and close connection with the real purpose of the Art-Union of London; and knowing the part this association has already played in extending widely a love of the fine arts, and inducing generally a strong feeling of interest in their advancement, they confidently appeal for earnest co-operation to every friend of progress and lover of his country.

GEORGE GODWIN, } Hon. Secs.  
LEWIS POCOCK, }

The Rev. Dr. Mortimer, in a few well-chosen sentences, advocating the importance, while attending to the useful, of developing a taste for the beautiful, moved the adoption of the report, and

Professor Donaldson ably seconded it, remarking on the good which had been done by the association.

Mr. Hersee, while he bore witness to the value of the council's services, especially in the introduction of bronzes and statuettes, said but must object to the lowliness of the highest prize—200l. He thought it ought not to be less than 500l., to serve as an inducement for the production of fine works.

Mr. Godwin said this was necessarily a question on which there were two opinions even in the council. It had been fully considered there, and the majority had come to the decision announced. Any expression of opinion by the meeting would of course have dwelt with the council hereafter.

The motion having been put and carried unanimously,

Mr. J. J. Scoles proposed that the best thanks of the association be offered to the council for their past exertions and valuable services, which was seconded by Mr. Hersee, and carried unanimously.

Thanks were afterwards voted to the honorary secretaries for their services in promoting the interests of the association. One of them, in replying, reminded the meeting that the association had already expended 140,000l. in the purchase and production of works of art, and he concluded with a tribute of praise to Mr. T. S. Watson, B. A., the assistant secretary.

Captain A. Shea, and Mr. A. B. Wright, having consented to act as scrutineers, and Miss Laura Cory and Miss Clarke to draw the prizes, his Royal Highness departed amidst the acclamations of the meeting; the Rev. Dr. Mortimer took the chair; and the distribution commenced.

The following is a

#### LIST OF PRIZEHOLDERS ENTITLED TO SELECT FOR THEMSELVES.

Entitled each to a Work of Art of the Value of Two Hundred Pounds.

Mann, J. H., Kentish-town.  
Wire, D. W., St. Swinith's-lane.

Entitled each to a Work of Art of the Value of One Hundred and Fifty Pounds.

Cresswell, A. E., Norwich.  
Litchfield, Edmund, Liverpool.

Entitled each to a Work of Art of the Value of One Hundred Pounds.

Deans, J., Kirkstall.  
Reynolds, Capt., Junior United Service Club.  
Taylor, David, Kenington-common.

Entitled each to a Work of Art of the Value of Eighty Pounds.

Bell, Jacob, Langham-place.  
Brown, C., Lower Tooting.  
Dodge, —, Bideford.  
Mastin, W. J., Sleaford.  
Potchett, Rev. C., Grantham.  
Pratt, G., New York.

Entitled each to a Work of Art of the Value of Seventy Pounds.

Burgie, W., Jun., Dorset-street.  
Child, R., Henley-on-Thames.  
Curwen, Rev. H., Workington.  
East, Edward, per R. Simpson, Collector.  
Gardner, G. H., Bowness.  
Payne, J. M., Farnham.

Entitled each to a Work of Art of the Value of Sixty Pounds.

Bald, P., Glasgow.  
Guest, Mrs. D., St. John's-wood.  
Lavers, W., Jun., Plymouth.  
M'Queen, F., Tottenham-court-road.  
Nowell, G. W., Maidenhead.  
Watts, F., Pimlico.

Entitled each to a Work of Art of the Value of Fifty Pounds.

Ball, Miss F., Merthyr.  
Benney, C. W., Winchester.  
Burrell, D., 261, Oxford-street.  
Edgworth, T., Wrexham.  
Lucas, J., Chester.  
Morris, R., Philadelphia.  
Proctor, E. C., Balls pond.  
Shipperly, W., Worthing.  
Watson, T., Lutterworth.  
Wingfield, R., Slough.

Entitled each to a Work of Art of the Value of Forty Pounds.

Armistead, J. F., Bank of England.  
Armistead, H. H., Lignorpond-street.  
Beckwith, W., Isle of Man.  
Fenn, T. B., Colchester.  
Green, E. B., Port Philip.  
Hallett, J. A., Great George-street.  
Maling, E. H., Bishopwearmouth.  
Mitchell, Rev. H. C., Lymington.  
Smith, Mrs. C., Knightsbridge.



Vickers, Archibald, Disley.  
Woodhouse, John, Ashby-de-la-Zouch.  
Young, F. J., Great Cumberland-street.

*Entitled each to a Work of Art of the Value of Twenty-five Pounds.*

Bavin, C., Lambeth-walk.  
Carr, H., Magdalen College, Oxford.  
Chatham, Officers' Marine Library.  
Durrant, J. R., Bank of England.  
Hooper, Miss, Reading.  
Lewis, Miss, Chestow.  
Lovegrove, Miss E., Blackwall.  
Moorhouse, H., Billiter-street.  
Stiles, M., Shepherdess-walk.  
Thurlow, Mrs. J., Judd-street.  
Trollope, T., Braintree.  
Wingate, W. B., Dumfries.

*Entitled each to a Work of Art of the Value of Twenty Pounds.*

Brigg, J., Bradford, York.  
Duffield, W., Bath.  
Fryer, J., Bewdley.  
Gardner, H., Bury St. Edmund's.  
Gillingham, J. B., Wareham.  
Graves, F., Hampstead-road.  
Hughes, J. T., St. Martin's-le-grand.  
Keith, F. H., East-India House.  
Loder, Miss K., Albany-street.  
Moffitt, W., St. Anne's-lane.  
Nudd, Edward, Dunstan-hall.  
Oakden, R., Goudhurst.  
Penrose, Rev. Dr., Chelmsford.  
Pickford, W., Lynn.

*Entitled each to a Work of Art of the Value of Fifteen Pounds.*

Banks, G., Hanbury.  
Bird, W. F. W., King's-road.  
Commissioning, S., Grenada.  
Delafose, Mrs., Oxford-terrace.  
Eddison, W. E., Walbrook.  
Grant, George, Glasgow.  
Greenhalgh, J., Mansfield.  
Hardwick, W. V., Grantham.  
Hodder, Miss, Isle of Man.  
How, W., York.  
Porter, Rev. L., Bolton.  
Rowe, Miss, 530, Oxford-street.  
Snyder, R. F., Philadelphia.  
St. Barbe, John, Stoke Newington.  
Stillwell, E. S., Barbican.  
Wilson, Mrs. R. C., Preston.

*Entitled each to a Work of Art of the Value of Ten Pounds.*

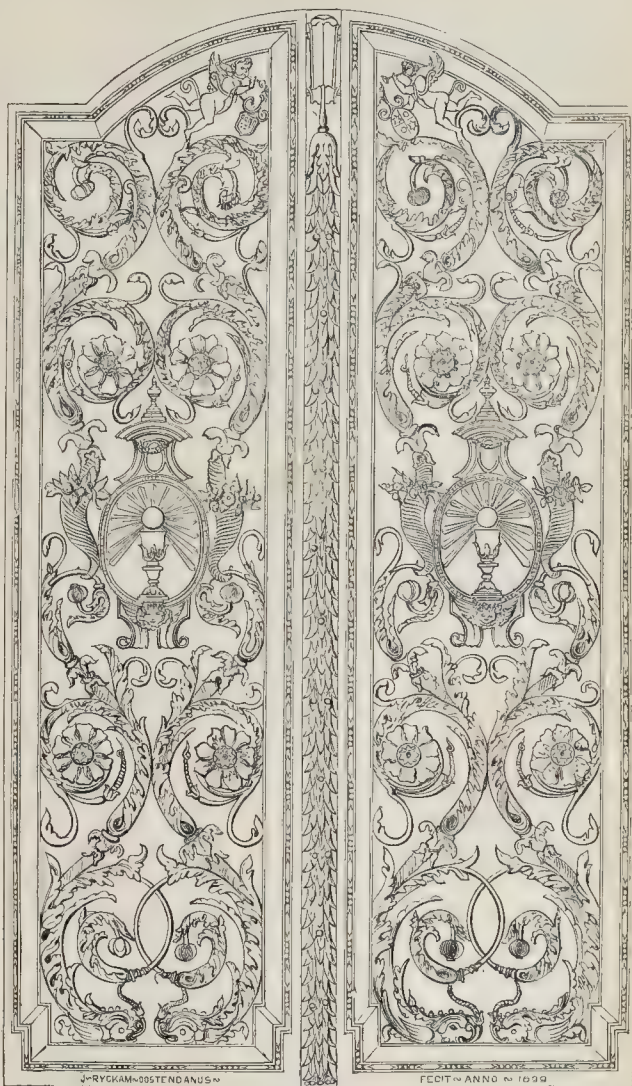
Beete, James, Demerara.  
Brefit, E., Pontefract.  
Cockburn, A. D., Piccadilly.  
Davidson, R., Forres.  
Dennet, J., Cranbrook.  
Dornan, C., Hammersmith.  
Gell, W., Isle of Man.  
Harris, A., Hartlepool.  
Jeffery, C., Limehouse.  
Lee, Robert, Regent-square.  
Malcolm, R., Nairn.  
Munroe, James, Boston, U.S.  
Payne, W., Horselydown.  
Robertson, T., Glasgow.  
Smith and Weedon, P. N. R.  
Smith, W. W., Kentish-town.  
Staite, O., Bernard-street.  
Swift, Miss, Liverpool.  
Taylor, Miss E., East-India-road.  
White, A. E., Poplar.

The following are entitled each to a bronze bas-relief of "The Death of Boadicea":—Messrs. J. Aubrey, T. Black; Mrs. Brown; Messrs. E. Crompton, E. S. Garner; Mrs. D. Hart; Messrs. H. Hibbert, E. Hipsley, E. Johnson, T. Lambert; Dr. Mennis; Messrs. Luke Minshall, W. S. Porter; Rev. G. Roberts; Messrs. C. S. Ross, J. H. Sheriff, James Sherman, James Stewart, W. Tarratt, James Wilson.

The following are entitled each to a porcelain statuette:—Messrs. James Allen, Charles Andrews, B. Bacon, W. A. Bangs, J. B. Barrow, Dowager Lady Bloomfield; Messrs.—Brinkworth, J. Byrne, Rev. G. Bechy Calvert; Messrs. W. Chaplin, A. Cobett, Rev. M. Cooper, Rev. M. Braunschaw, F. W. Medley, John Mitchell, James Pickup, James Price, George Richardson, John Rivington, W. Rowell, Mrs. Russell; Messrs.—Seward, Jas. Shaddock, Mrs. George Smith; Messrs.—Thompson, Joseph Turner, J. B. Vallee, Mrs. Wainwright; Messrs. William Walker, Thomas Weston, C. Wilkinson, J. F. Wilmore, Thomas Wright.

The following are entitled each to the society's Silver Medal:—Messrs. D. R. Andrews, J. H. Aspinall, J. Bacon, W. Beard, Robert Brandart, Jacob Bell,

# IRON GATES IN THE CHURCH OF NOTRE DAME, BRUGES.



## IRON GATES IN THE CHURCH OF NOTRE DAME, BRUGES.

Mrs. T. Chambers, Messrs.—Chapman, Mrs. Collingwood, Messrs. R. Dent, Copley Fielding, James Gell, Miss Harrison, Messrs. R. Heckells, W. Howe, J. B. Illidge, E. James, C. T. W. Kensington, W. C. Laming, W. Lowther, E. N. Martin, W. Nathan, C. H. Newton, Mrs. A. Nicks, Messrs. J. W. Perkins, Ed. Robinson, John Turner, Rev. W. Vigor, Messrs. A. Welby, W. Wiggins.\*

ARCHITECTURAL SOCIETY OF NORTH-AMPTON.—This society will hold its spring meeting this year at Stamford, on Wednesday, May 22nd, in conjunction with the Lincolnshire Architectural Society. Among other papers, one on painted glass by Sir Charles Anderson, Bart., has been promised, and one on the churches of Stamford, by the Rev. G. A. Poole.

\* The names of those who are entitled to proof engravings, &c., may be learnt at the Art-Union office.

A LEGEND on the foot of these folding gates informs us that they were made by one Ryckam, of Ostend, in the year 1699. For delicacy of execution they are surpassed by few similar works in iron. Our engraving is from an accurate drawing made by Mons. Rudd, architect, of the city of Bruges. This gentleman has been for some years occupied in preparing a publication illustrative of the works of ornamental art existing in Bruges, to be engraved in outline, but hitherto his professional occupation has impeded its completion.

The Church of Notre Dame, where this fine pair of gates form the entrance to the choir behind the high altar, is renowned for containing the magnificent monuments of Charles the



Bold and of Mary of Burgundy. There is besides a profusion of works of art in painting and sculpture; among the latter a group of the Virgin and Child in marble, attributed to Michelangelo, and certainly bearing the impress of his masterly hand. Externally the church is distinguished by an uncouth spire rising to the height of 442 feet. There were formerly four turrets at the angles of the square part, but being out of repair, they were demolished in 1760, and this has occasioned the singularly naked appearance given to a tower and spire of such enormous altitude.

#### THE ARCHITECTURE OF THE DAY.\*

Now some of our celebrated buildings exhibit qualities the very reverse of all these.—At Eton Hall, the buttresses on the exterior, two between each window, in some parts, having no reference to anything within, are useless and unmeaning, and perhaps worse than useless, even if beauty were independent of truth, for these omissions might have led to something unique. I should like sometimes to see a row of fine tracery windows without the somewhat rude interruption of the buttress, the absence of which, I think, would excuse some pictorial qualities to be developed that would excite our admiration. Buttresses, it should be remembered, have not the softness, the light-and-shadow qualities, which distinguish the column and unite it to the front: they have the advantage of giving a bold and decided shadow, but for lightness and elegance cannot compare with the latter: placed between every window, they in some measure interfere with unity: the window is, from any good point of view, visually mutilated, and in extreme views, and where there is a great projection of buttress, lost altogether. It is true that, toward the summit, where the buttress frequently ends in a slender turret, or is discontinued, the surface of the wall becomes again united; but the union is a slight one, and the injury to the view of the window is considerable. Now beauty or novelty must be sacrificed where they interfere with constructive requirements, but in many instances the buttress is clung to where it is useless, and where the omission of it would at least produce something more unique. Of the effect of a row of beautiful florid or perpendicular windows, in full style of decoration, and without buttresses, we can scarcely judge; but I have no doubt it would be fine: I have noticed that where the windows are very broad, consisting of many lights, and the buttresses, consequently, few and far between, the effect is very rich and elegant. But whatever the result, I would say, leave out the false buttress, and trust to truth and the inherent power of the style, to produce sufficient effect with those parts and features which are constructively essential.

The building I have just referred to gives false ideas of its construction; but there are those that convey erroneous notions of their character and use. Some country seats (which, fortunately, are not increasing in number) have, with their boldly decorated windows, in conjunction with lofty six or eight columned porticoes, embracing the whole height of the building, more of the appearance of public buildings than private residences,—a thing that ought to be sedulously avoided, even in the largest mansions, on which the character of private and domestic should be written as legibly as on the cottage. There is, perhaps, nothing that distinguishes a building as public or private more than the style of its entrance: a large and lofty portal seems to invite a multitude, and is characteristic of a public edifice; small ones, on the contrary, express the domestic, though a good breadth of door is not a bad symbol of hospitality. This is a point, however, on which the architect may be overruled. Some wealthy parvenu, dreaming, with Lord Bacon, of "feast and triumphs," may, in his anxiety to show "a side for the banquet," persist in forgetting the domestic every-day purposes of his inharmonious and conventional abode.

Before concluding these more particular allusions, I would make a remark on what is perhaps the most interesting feature of our

ecclesiastical structures—the steeple. A spire will not look well, and should not be placed, above a circular peristyle of pure Greek columns, surmounting, as it were, a peripteral temple, as is the case in some of our churches. It is like crowning with a spire the monument of Lysicrates or the Temple of Vesta at Tivoli. The spire is a feature essentially Gothic, and, therefore, before it can be used along with classic orders, the latter must undergo some adaptation,—there must be an infusion of the vertical principle to make them harmonize with the spire, which should be small, and light in appearance, not too conspicuous in the design, as it is not, and cannot be, quite at home in a classic building. This is done, except perhaps as regards proportion, by Gibbs in the church of St. Martin's-in-the-fields, and by Wren in some of his, where the columns are attached, and the entablature is broken over each, as a preparation for the surmounting spire, and a beautiful whole is produced. St. George's Church, Dublin, is also a good example of this adaptation. The Italian manner of grouping columns, by which rich results were obtained, as at the Duomo of Syracuse, might suggest something on this head. But the principles on which the Italians produced their beautiful groups and compositions have not been fully investigated by English artists and illustrated in this country.

The want of beauty in many Gothic steeples of late erection arises, I suspect, from a mistake as to the medium through which beauty is obtained in such structures. An impression seems to prevail, that, if the requirements of construction be truly observed, all will be right; but beauty is not altogether dependent upon these; it must be an object of design: neither essential parts, nor needful strength, must be sacrificed to the spirit of decoration, but construction *must* be modified by regard to abstract beauty. Many unsightly edifices have been the result of error on this point, and many beautiful forms have been excluded.

It is strange that so little hint has been taken from the town and lantern of St. Nicholas, of Liverpool, and those of its namesake of Newcastle. They are among the most beautiful stone-embodied visions in the kingdom. The former, more substantial in construction than the latter, and less liable to the charge of "fantastic," is, indeed, a most elegant object. Its perforations give it a truly aerial character, a fairy-like airiness of effect, highly becoming in such objects, which, being seen from so many points, call loudly for decoration; while their elevated and insular situation demands lightness,—and perhaps nothing more suitable for thus invading the blue sky, and reposing in the regions of the air, could be imagined. Some fine steeples have lately been erected in the neighbourhood, but there are those against which complaint has justly been made. Among the objects that, by rising above the roofs of the town, are more constantly courting our observation, our tall chimney-shafts are, to me, not the least pleasing: some of them, elegant in form, graceful in outline, may at least enter the lists in rivalry with the steeples. Sufficiently simple, and certainly not calling for much invention, they are nevertheless, from the geometrical properties of their form and section, necessarily beautiful.

The failure of beauty in steeples, I fear, may owe its origin not only to the cause I have mentioned, but also to too servile a spirit of imitation of ancient forms; and this spirit is certainly manifested in the appropriation of Gothic details generally. On this head, I would observe, we should not imitate or appropriate anything that is evidently the result of imperfect or infantine art. In adopting some early style we should take only the principle of design and execution, but give to the detail the benefit of the present advanced state of both. Now, many of the details of modern Norman churches are slavish copies of what was not worth copying, and are quite indefensible on any other grounds. Many of the decorations of the early styles of Gothic are not more deserving of our imitation in the present day. We admire the principles of design and laws of construction of the mediæval edifices, but, among the multitudes of ornaments used in them, many are of a barbarous character, offensive to pure taste, and such as must grate upon genuine artistic feeling. They may, in the old building, mellowed by the hand of

time, look well enough, but are not fit to meet the light in edifices of the nineteenth century. What I wish chiefly to observe is, that nothing should be used now simply because it has been used. Antiquity will not atone for the want of beauty. If we cannot discern something abstractedly good in it, or harmonious in its relations, we should reject it. We may—we must—have a high idea of the taste and genius that designed the cathedrals of York and Lincoln, and admire the scientific and mechanical skill that triumphed in their construction; but that is not a sufficient reason for using any particular ornament of these structures. We cannot take its beauty upon trust.

As to the lack of originality generally, I trust it is now unnecessary to say much on the subject. Without originality, we cannot have real beauty. Nor can a perfect building be made up of fragments, however beautiful each part may be in itself, or perfect the whole from which it was severed,—I mean, by merely bringing beautiful parts together in a new combination,—but such parts may be so modified and moulded, by the fusing, plastic hand of genius, as perfectly to amalgamate. Genius adopts as well as creates; but it irradiates all that it touches: a great portion of the lines of Shakspeare were adopted from preceding poets; but they are so united in each poem as to form one perfect whole. The main charm in any building, as in a poem or literary composition, must be in its entirety; and when this complete unity exists—that concord and harmony which may be seen in nature, and which it is the aim and triumph of art to obtain,—no imaginable alteration could be made, no addition or division, without disturbing that spirit of beauty which is recumbent there, and which such compositions must ever enshrine.

This originality of design requires not the discovery of a new style: invention could not supply a better basis for design than the elements we have, nor so good. The poet looks out for some legend or groundwork in history which may serve as a body for his poem, and into which his imagination is to breathe life and beauty. Why deny the architect an equal privilege? It is known and acknowledged that tradition supplies a better fable for a poem than any invention can, and the principle holds good in architecture.

What has been said about choosing a style, and confining our design and practice to that style, is entitled to some attention. Certainly our practice of styles wants limiting. We need no Chinese, Egyptian, Indian, or Turkish, as distinct styles. We must not, if we would avoid the ridicule of enlightened criticism, exhibit within the compass of a few square miles the architecture of different zones of the globe. Let us examine them, extract a principle, catch an idea from them, and dismiss them. Of the two styles, or classes of style, viz., the pointed and the antique, I do not see that we can dispense with either. Each expresses ideas which the other could not so well express. The horizontal principle of the one endears it most to sublunary feelings, and the antique is therefore best adapted for the expression of earthly purposes, for symbolizing terrestrial power and magnificence; while the vertical principle of the Gothic, pointing beyond time and space, marks it as the appropriate expression of celestial aspiring and trust. Madame De Staël calls the cathedral of Milan "a beautiful image of grief towering above the gay and opulent city,—a silent image of that mystery of infinity which we feel within us." It is true we have sought to infuse the Gothic principle into classic architecture, and even its most characteristic feature, the spire, has been adopted into its family, but whatever our success in this, they are indigenous to the Gothic. There, emphatically,

"Hope had her spire—  
Star high, and pointing still to something higher."

Beauty is the leading trait of the former—sublimity of the latter.

As to the comparative value of styles, I should say, the one that would embrace for its ornamentation the widest range of animal and of vegetable creation, as admitting most variety—richness—and that would be capable of adapting—of fully subduing—them to its use, would be the best for our purpose. I do not see that either the classic or Gothic is

\* See p. 183, ante.



defective in this particular. But, for fully adapting the classic to our age and wants, we want new sources of decoration opening up—its own legitimate sources, but on which it has yet but slightly drawn. All nature and the regions of art and science lie open to us, but we do not sufficiently avail ourselves of them. We are too timid in invoking their genii to our aid. To assist him in his conceptions, as well as in realizing his visions of beauty, the architect, like the poet, should not be above stooping to any source; he should be happy to adopt ideas and images from any department of creation and life. "In the mire of politics, Dante and Milton selected pearls for the wreath of song." Our present art must be evolved by the intuitions of genius, and the discoveries in science,—not only from the infinite nature around us, but from all past productions of art; and the architect should examine its remains, as far as practicable for him, in all countries, with a careful eye, that from them he may gather food for the hive of his thoughts; remembering that excellence is not altogether confined to one period or place. There is a sympathetic effect, there is a magic in a great and fine building, no matter what the style, or how remote from what our condition of society requires, that operates upon the inventive faculties—strikes the electric chain of the imagination: beauty is contagious; the soul drinks in harmony while it beholds it. "The impression," says Goethe, "which this edifice (an ancient temple) left upon me is not to be expressed, and will bring forth imperishable fruit." "A great work," says another writer, "always leaves us in a state of musing."

S. H.

## THE QUESTION OF COPYISM.

If I take up my pen to say a few words in reply to Mr. Scott's last letter, it is not with any idea of continuing a correspondence, which must already have exceeded your readers' patience, but simply to attempt to answer, as far as I can, in words, a question which he as well as others have put, as to what we would propose should be done if copyism be abandoned?

It would be far easier to answer this query with the pencil than with the pen, for whatever is written must, from the nature of the thing, be exposed to the objection which forms the gist of the opposing argument—it must be *vox et præterea nihil*. In this respect the architect is more unfortunately situated than his brother artists. A painter or a poet may complete his works on his own account and risk, and present them to the public in all the perfection they are capable of, without asking any one's leave or assistance. The architect, however, cannot build either palaces or churches on his own account, but must wait till the public employ him; and even then he must not follow his own fancies, but execute the will of his employers. In every age the architect has been the servant, never the teacher of the public. Noble service he has done, it is true, but it has been at the bidding of those who held the purse-strings. It was not, for instance, the architects who revived classical architecture in the sixteenth century. It was that the authors of Greece and Rome became at that time the mania and prevailing fashion of the day,—everything that was classical was beautiful, and poetry and literature, as well as painting, sculpture, and architecture, were forced to follow in the path this new direction of the human intellect had pointed out; and, if that style still linger amongst us, it is not because the architects wish it, but because all the upper classes are educated in our public schools and universities wholly and solely in Greek and Latin literature, so that all their early and strongest associations are connected with the classical ages and the arts that then were practised.

The same is true of the present Gothic revival. The substitution of that style for the classical was not the work of the architects, but was the offspring of the romantic school, which arose at the end of the last century, especially in Germany, as a reaction against the then abhorred classical school of the French. Goethe and Scott were far more the authors of this change than any dealers in stone and

mortar that can be named. It has, however, failed as a general reaction, and Gothic castles and Gothic villas are far less frequent than they were a few years ago: the fashion in domestic architecture, at least, is fast dying out; and so, if I mistake not, it would very soon in ecclesiastical buildings, were it not that a small, but very influential party in the church—as Mr. Cobden calls them—longing for the power and influence the clergy enjoyed during the Middle Ages, hope by reviving the arts and forms of those bygone times, to accustom the people to a revival of the sacerdotal supremacy that was their concomitant. The moment the clergy perceive that by this course they are attracting only the weak and sentimental, and alienating the most earnest and powerful intellects, there will be an end of Gothic churches and the Mediaeval mummeries that have sprung up with them. But till this knowledge dawn on the hierarchy, the Gothic architects have it all their own way. Had they, however, lived during the last century, their art would have been as completely *vox et præterea nihil*, as is that of those who are waiting for better days.

The public must first be told that something better is possible. They must be convinced, from the experience of past ages, that it can be done by ordinary mortals; and, lastly, they must see sufficiently clearly how it can be done to enable them to direct the movement. When this is the case, there will be no want of architects to fulfil their behests; but till it be so, no progressive architect will have an opportunity of translating his voice into the substantial form of stone and lime. Even then it will not be easy: no one man can do it, nor can it be done at once. The first Gothic churches were built at the beginning of this century: there are some precious specimens at Liverpool and elsewhere,—some most painful failures; and it is only after the experience of half a century, and by the combined exertions of a great body of talented men, that we are enabled to erect the nearly perfect imitations we see every day arising around us. So it must be by the restorers of common sense to art,—they must experiment and flounder for some time before they can hope to succeed, if ever they do. I know it can be done, and see the direction in which the improvement lies; but whether it will ever be done others must decide, and time only can prove.

But to come to the point: if we abandon Greek and Gothic copying, what is to be substituted? The three following rules may perhaps make this clearer:—1st. *Design* a building wholly and solely for the purposes for which it is to be used, without the least reference to any bygone age or style; 2nd. *Construct* it with reference to the best material available; using each material—whether it be brick, stone, marble, or wood, or metal—according to its own properties, and these only, never allowing one to take the form or interfere with the province of the other; and, lastly, *Ornament* the building so designed and constructed in whatever manner you can conceive as most appropriate and most elegant, never concealing or even disguising construction or material,—only dressing them, to use a familiar phrase,—and likewise without any reference to any style, or ever looking back, but always forward,—trying to surpass whatever has been done before.

A strict adherence to these three rules, which sound almost like truisms, when so stated, has enabled every nation, in every age, except the present, to elaborate a beautiful and appropriate style of their own. It remains for some one to show why it should not do so in modern Europe.

Perhaps an instance may serve to make this clearer; and, as an example, let us take that most hopelessly prosaic of all architectural forms, a modern dwelling-house in a town, with a door and two windows on the entrance floor, and three windows on each of those above,—be there two, three, or four of them. If this form were put into the hands of a man of taste, without any prepossession, he would give the door exactly that prominence it requires, and, if ornamented appropriately, and with taste, it has been made, and may again be made, a most pleasing architectural feature. The windows of the drawing-room floor ought to be grouped together, or at all events treated as one composition, and the most richly ornamented of the whole; those of the bed-rooms

separate, and plainer, diminishing both in size and ornament as we ascend. The reveals of the windows should not be too deep, as great strength is not a necessary, or indeed a pleasing characteristic of a private dwelling, but they must not be so shallow as to give an appearance of flimsiness: balconies, of course, should be used to give shadow and prevent the whole being flat; and, above all, a cornice must crown the whole, forming the eaves of the roof,—not, of course, such a cornice as crowns a temple or a Farnese palace, but one simple and elegant, as befits a gentleman's residence, and exactly proportionate, both in projection and mass, to the greater or less solidity of the wall below it. Treated in this way with judgment and taste, a private dwelling may be made a most pleasing and elegant architectural object; far more so, certainly, than if the windows were barred with mullions or obscured with columns, or if the only merit of the composition were to look like a dried specimen of something it was not, and nobody believed it to be. It is true it would not be easy to point out in London any instance in which this has been successfully accomplished; but in Paris there are many, and in the new parts of Berlin, and especially of Hamburg, built since the great fire, there are whole streets of houses surpassing in variety and picturesqueness any produced during the Middle Ages, and possessing ten times their "firmness, commodity, and delight." Yet even with these there is not one that might not, by study and taste, be improved upon, and I have no doubt will be ere long.

I need scarcely add, that what may be done with such prosaic things as private dwelling houses in streets, can far more easily be done with churches and public buildings, which possess in themselves many elements of architectural effect the other can never reach; and if we can surpass the Gothic architects in the one, we could far more easily do it with the other.

From the very nature of the subject, however, it is evident that it is not by words, but by facts and acts, that such a proposition can be proved. As far, however, as I can do so by words only, I have made my meaning plain to those who wish to understand it, and having done so, I must take leave for the present of a correspondence with which I have already transgressed too long,—to return to it, however, I hope, in another form on some future fitting occasion.

J. F.

## DISTRICT SURVEYORS' FEES.

STR.—With a desire that, as a body, we should stand in a fair light with the building public, I hope you will inform your numerous readers that, in November, 1846, when the subject first came under the notice of the District Surveyors' Association, and on several subsequent occasions, we strongly reprobated by unanimous resolutions the exactions (as we deem them) of one of the district surveyors.

In consequence of the feeling unanimously expressed at our last meeting, that the system pursued by the party alluded to is incompatible with his associating himself with those whose views so totally differ from his own, he tendered his resignation as a member of the association, and it was unanimously accepted.

ROBERT HESKETH,  
Hon. Sec. District Surveyors' Association.

BUCKINGHAM PALACE.—A parliamentary paper just published shows that the sum voted for the enlargement and improvement of Buckingham Palace in 1847-48 was 50,000*l.*—expended, 52,019*l.* 9*s.* 1*d.*; voted, 1848-9, 30,000*l.*—expended, 35,853*l.* 18*s.* 11*d.*; voted, 1849-50, 14,200*l.*—expended, 13,344*l.* 15*s.* 9*d.* Another memorandum, signed Carlisle, states—the total of votes for this service, from the commencement of 1846-7 to 31st March, 1850, amounts to 114,200*l.* and the total expenditure incurred to 31st March, 1850, amounts to 112,721*l.* 6*s.* 7*d.*, in which expenditure is included the cost of constructing a new sewer in the front of the building, amounting to 2,633*l.* 19*s.* 3*d.*, and for fixtures and fittings, 1,647*l.* 13*s.* 8*d.* (together 4,275*l.* 12*s.* 11*d.*), neither of which services were comprised in the estimate of 1846-7.



DUNDY CHURCH TOWER, SOMERSETSHIRE.





## DUNDRY CHURCH TOWER AND QUARRIES.

When in Bristol, two or three weeks ago, a pleasant friend drove us to Dundry, in Somersetshire. Dundry is a small hamlet to the parish of Chew Magna, about five miles from Bristol, and contains about fifty houses, clustered about a church, with a fine lofty tower which, standing on a hill, may be seen from afar, and is said to have been built as a sea-mark by the merchant adventurers of Bristol. The towers at Chewton Mendip, Chew Magna, and Dundry, are ascribed to the same architect, and what was probably a bad joke has become a tradition, to the effect that he gave the name to the latter place, by exclaiming when he had finished the tower, "Now I have done dree."

The tower is of the Late Perpendicular period, massive and plain, with fine bold strings, and crowned with the pierced turrets, and traceried battlements, with a lofty pinnacle in the centre of each square face of the tower, and a small buttress at each angle, projecting before the angle of the turret, supported on a carved grotesque, peculiar to the west of England. The tower of Gloucester Cathedral, finished about the middle of fifteenth century, probably afforded the type for this arrangement. St. Mary's, Taunton, and St. Stephen's, at Bristol, are both similarly terminated. The tower of St. Mary's, Taunton, belongs to quite the close of the fifteenth century, or the commencement of the sixteenth, and to this same date the tower of Dundry may be ascribed.\*

Annexed we give an engraving of the tower, from a drawing by Mr. C. Wickes, whose proposed work on the towers and spires of Great Britain we mentioned recently. The projection of the slight angular buttresses from the pierced work give a top-heavy appearance to this tower, which is not the case at St. Mary's, Taunton. The reason appears to be this, that the main buttresses of the Taunton tower are placed close to the angles, and the pinnacle with which each is surmounted runs close up to the carved figure that carries the small angular buttresses above, so that, looked at in whatever position it may be, the pyramidal form of the whole mass is preserved,—the top does not seem to overhang. Whereas in the Dundry tower, the main buttresses of the tower which towards the top project only slightly, and ultimately die away, are set in some distance from the angle on each face. The tower is in an excellent state of preservation; but the upper part had become loosened and decayed, and has been braced and tied with iron in the most extraordinary manner. The story told us on the spot by the custodian of the church, with evident gratulation, was, that an architect having been called in, "who wanted a job" he supposed, he reported that it ought to be repaired and partly rebuilt, but that the parish blacksmith said he would make it all sound for one-fifth of what the architect said it would cost, and thence the elaborate network of iron bars which now disfigure it, and must ultimately destroy it altogether. Long bars of iron, from the level of the flat to the top of the turrets, cross each other in all directions, without even the commonest arrangement to prevent evil effects from expansion and contraction. We cannot too often impress parish authorities, when dealing with structures which belong to posterity, the necessity of taking proper advice and following it.

The church is small, and of much earlier foundation than the tower. In the churchyard the ancient cross remains. It is placed on four high steps, above which it rises about 16 feet. The base is of one stone, 3 feet 9 inches square, and 3 feet 3 inches high: the arrangement of this on its plinth, and the simple means by which an intricacy of plan (passing from a decagon to a square, and from the square to an octagon) is obtained, are worth study.

The cross, like the tower, is of the stone from the neighbouring quarries, and is in good condition,—much better than is Redcliffe Church, which was built with stone from the same place. Dundry stone is an oolitic limestone. A considerable extent of land has been quarried in early times, perhaps 40 or 50 acres. The workable stone lies 20 feet from the surface,

and is not more than 5 or 6 feet thick, consisting of three beds, each about 20 inches high; of these the middle bed alone, the quarrymen said, can be used for carving.

The overlying stratum, called the "Bastard stone" (6 or 7 feet in thickness) is very hard, almost granitic, and might be used for heavy work. The base of the cross already mentioned, is from this bed, and there is a large cube of it in the churchyard, near the south porch, known popularly as the pay-table.\* A block, 20 tons in weight, might be got out of this bed, if it were needed. At the entrance of one of the ancient quarries, a flat block has fallen, which is 12 feet long, and 15 feet wide.

Recently one of the quarries has been worked to a trifling extent, and the circumstance which led to it was somewhat curious.

A bull left grazing in the field above was missed, and for two days speculation was at fault concerning his whereabouts. At the end of that time, two boys observed a fissure in the earth amongst some bushes, and adventurously descending, found themselves in an extensive quarry, and the bull there before them, evidently by the same road. They ascended with the news, and a quarryman, with a few ounces of powder, soon made an opening by which first to release the incipient beef, and afterwards some blocks of stone. In early times this incident might have been dressed into a very pretty proof of supernatural intervention, and have led to the endowment of an abbey or the erection of a church.

Bristol, seen from the hill on returning, with the cathedral and adjacent spires, the river, and the rocks at Clifton, makes a beautiful view; and on the road there is a large residence worth noticing, for the arrangement of its twelve chimneys, which are connected into a square turret-like form in the centre of a flat roof, with three arched openings in each side. According to a casual informant, a singularly obtuse plough-boy, standing near,† the house is called "The Twelve Tons,"—probably with reference to these chimneys. In some parts of the country, if we remember rightly, chimney-pots are called *cans*. Enough, however, of Dundry for once.

## THE METROPOLITAN SANITARY ASSOCIATION AND THE HEALTH AND LIGHT TAX.

The association have now properly spoken out against this abominable tax, and have prepared a petition to both Houses, showing that light and air are absolutely essential to healthy human organization. That the diseased conditions, which are the more prominent results of a deficient supply of light and air, are tubercular diseases, and zymotic or epidemic diseases. That about nineteen thousand persons annually perish in London from these tubercular or scrofulous diseases. That these, from their long continuance and from wasting the means of life before death, may be characterized as *pauperizing diseases*, and that the experience of the medical men connected with the orphan charities of the metropolis proves a very large proportion of the parents of such children to have perished of consumption.

The petitioners properly say, "That health is the capital of the working man, and that whatever be the necessities of the State, nothing can justify a tax affecting the health of the people, and especially the health of the labouring community, whose bodily health and strength constitute their wealth, and oftentimes their only possession;" further, "that no modification of the tax on windows can free it from the calamitous results of which it is the cause."

This was signed by the Bishop of London, as president, Lord Robert Grosvenor, and the honorary secretaries, and will be presented by the Bishop and Lord R. Grosvenor.

The Tower Hamlets branch of the association have resolved on a similar petition.

On the 26th an influential deputation waited on the Chancellor of the Exchequer on the same subject. Sir Ralph Howard, Mr. W. E.

Hickson, Mr. N. B. Ward, Lord Robert Grosvenor, and Mr. C. Fowler addressed statements to the Chancellor, to which no reply could be given. All the pledge they could obtain, however, was, that the question would receive the fullest consideration of the Government.

We have a pile of letters, from correspondents, on the tax, but have not space for them.

## THE SOCIETY OF PAINTERS IN WATER COLOURS.

In addition to the ordinary interest generally awakened by the annual display of the works of Cattermole, Cox, Fielding, Prout, Hunt, and the other patriarchs who have raised water colours to their present position, a wonderful specimen of elaboration, a marvellous combination of power and care, by Mr. John F. Lewis (whose name, though justly known far and wide by pictures and sketches, chiefly of Spanish episodes, is seldom appended to an exhibition list), excited a *furor* at the private view of this society's works on the 27th. In handicraft and completeness, nothing of modern times has approached it. The consummate management of reflected light, the precision with which every part is respectively perfected and brought together, are causes of wonder and admiration. The chosen theme for this singular expense of labour (an expense few artists can afford), is (147), "The Hhareem." The prince is represented seated cross-legged amidst his "collection," gazing intently on the beauties of a young Nubian houri, the latest acquisition, who, with an instinctive timidity, is being unveiled by a tall eunuch for the approbation or disapprobation of his lord and master. The shrinking, modest attitude of the "bargain," is strongly contrasted by the easy carelessness of the several "peerless pearls," "lights of mine eyes," and "apples of my heart," grouped around the monarch, anxiously, in spite of their expressed indifference, awaiting the result of the inspection: the dignified superciliousness of the favourite lounging in luxurious ease on the divan, hardly deigning a glance at her rival, is a charming impersonation, the loose eastern costume, superlatively picturesque, so exquisitely drawn, and assorted so naturally to the wearers, is free from conveying a notion of fancy balls. The effect of the light streaming in through every aperture of the trellis building, casts a shadow of the cagework on nearly all the objects introduced, and so subtly this is managed as not to strike the eye immediately, and it induces a delusion of its growing by degrees stronger, and anon, weaker. The total absence of positive shadow suggests, at first sight, an idea of flatness, but on closer observation, the decided, but delicate manner in which every particular is cleared from that which surrounds it, not interfering with general breadth, compels one to acknowledge that an introduction of more colour and depth would lessen its value as a close imitation of fact and circumstance.

The *tout ensemble* of the gallery is so like what it has been for years, that one seems to have seen and to recollect almost all the drawings,—the same excellencies that characterize the many, the same faults that are chargeable to the few.

The veteran Cox still revels in his vigorous washes of Nature's own hues, and stereotypes passing cloudy effects with that freedom undeniably his. (24) "Summer," a broad field landscape with hay-makers, devoid of all conventional feeling. (35) "Changing the Pasture," (135) "Beaver Grove—Betwee-y-God," (141) "Blackberry Gatherers," (213) "A Welsh Funeral," a first-rate specimen, with some three or four others, are equal to any preceding exhibitions.

Cattermole continues to perpetuate his gorgeous dreams of the glorious days of chivalry. (285) A series of subjects: 1. The Offence; 2. The Challenge; 3. The Sword. (299) 1. The Departure; 2. The Combat; 3. The Issue,—comprise a tale, told with impetuous fervour, in better colours than it would be in a three volume romance. (294) "Three Scenes from Macbeth," wears rather a theatrical aspect. (318) "Scene with Macbeth and the Murderers of Banquo," wherein are introduced the three witches on rather questionable authority, is the most successful of his contributions for character and purpose. The witch who is squeezing venom into Macbeth's cup, from an adder twisting round her arm, is highly symbolical, but intrusive. (330) "Scene from Woodstock," is rather weak and below his average mark, (344) A sparkling

\* A stone in the bottom story of the Dundry tower is marked with the date 1492.

\* There is a "pay-table," it will be remembered, in the porch of Cirencester Church.

† It is to be hoped not an index of the mental state of the rural population thereabouts.



"Sketch," is loosely executed, but delicious in colour.

Mr. Hunt upholds his high character as an exact imitator of what he portrays, in his study (165) of a "Hare, Wood-pigeon, &c.,"—the verisimilitude of the real objects. (240) "A Jug of Roses;" (241) "The Oratory;" (249) "A Masquerade;" (262) "A Female Head;" (275) "Primroses;" (280) "Prayer;" (281) "Grapes, Figs, &c.;" (284) "Bird's Nest, &c.;" (288) "Apple Blossom," are often repeated proofs of what he can do in accurate imitation of reality, defiant of all attempts to adopt his style.

Copley Fielding, as usual, excites the wonderment of all at the extreme perseverance and industry manifested in no less than *forty-one* drawings, able delineations of English and Scotch landscape, many of size and all of pretension. No wonder, then, at the society's proverbial strength in this department, when their members are willing as well as able to work.

The clever adaptations of architecture to artistic purposes, by Mr. Joseph Nash, so clear and powerful in colour, enlivened as they are by judiciously disposed and gaily clad figures, always tell out conspicuously. (20) "Gallery at Aston Hall, Warwickshire;" (44) "Interior of the Hall at Speke, Lancashire;" (160) "Banquet given by Cardinal Wolsey to the French and Spanish Ambassadors, at Hampton-court Palace," are amongst works that testify to a zealous care of a well-earned name.

Mr. F. Mackenzie has two beautiful architectural drawings of "Lincoln Minster" (91 and 195), and a view of "Stow Church, Lincolnshire" (237).

One of the most graceful and careful appreciators of truth is Mr. George Fripp, whose drawings have ever the charm of freshness and individuality about them, unmistakably English, with much that reminds one of poor Maier; still there is sufficient of a distinctive quality to entitle him to originality in (41) "The Stud—on the Wharf, near Bolton Abbey;" (86) "Mapledurham Mill, on the Thames;" (120) "A Study on the Thames, near Medmenham;" (161) "Tilly Whim, on the coast near Swanage," &c.

(90) "The Irish Peizer," Alfred Fripp. A large drawing, by no means realising the promise of earlier efforts. Slovenly affliction of the master has displaced the neat execution of the apprentice.

(125) "Home" is a charming interior, by M. Topham. (31) "Highland Pastime," and (130) "The Return," although displaying first-rate points, show he is not so much at home in Scotland as in Ireland.

A drawing entitled (69) "Come in," by Jos. J. Jenkins, is distinguished by a quaint *naïveté* out of the common way, and is with (222) "The Calm," the best of the painter's contributions.

(15) "The Fishmarket at Rome," Carl Haug, a late addition to the society, whose productions, despite some foreign crudities and eccentricities of colour, seem to justify his election. (87) "The Remains of the Temple of La Fortuna Capitolina," exacts attention from its claims to a high class of style.

We could hardly find terms, without becoming tautological, expressive of admiration for all the productions that deserve it. The names of Prout, Gastineau, Rayner, Richardson, W. Evans, W. Evans of Eton, Bentley, Callow, Duncan, Dougson, Branwhite, Bartholomew, Richardson, &c., are a sufficient warranty for attractiveness. The most censorious will find little to abuse.

#### THE NEW HOUSES OF PARLIAMENT.

In reply to a question in the House of Commons the other night, Mr. Greene said he was certainly aware there was an action depending between Mr. Barry and Dr. Reid, but happily that subject had not come within the province of the commissioners. The commissioners were obliged to carry on the works as well as they possibly could—but certainly it was no easy matter to arrange matters between the contending parties.

Mr. B. Osborne gave notice, "that on an early day he should call the attention of the House to the desirability of getting rid of both Mr. Barry and Dr. Reid." (Loud cheers.)

On the 26th ult., there was a conversation as to the arrangements of the new House of Commons, when it was stated that the arrangement of six rows on each side of the House, as originally designed, would not afford that accommodation for members which was desirable. It was subsequently thought necessary that five rows only should be allowed; and, under these circumstances, it was quite obvious that the number of members who could sit in the House would be considerably decreased. To remove that difficulty a larger gallery at the end of the House was determined to be appropriated to

members also, so that a greater number might be accommodated than in the present House; and this had been carried out in a temporary manner in order that it might be occupied for some few days in the present session.

Mr. Hume inquired if the Government were prepared to pay a per centage to the architect before all the 'blunders' were rectified?—The Chancellor of the Exchequer said, they had as yet paid no per centage whatever to the architect.—Mr. Hume hoped, that no more money would be paid until these blunders were rectified.—Mr. Goulburn said he hoped that hon. gentlemen, in asking questions, would avoid using terms towards individuals which were not deserved. (Hear, hear, says the Ed.)

#### SLIMY BANKS OF THE THAMES.

THROUGHOUT Europe, no other metropolis is defiled by fluvial pollution such as debases the noble *rivage* of the father of rivers in London. From Chelsea to the Isle of Dogs, from Battersea to Greenwich, one long slab of fetid puddle disfigures the beach, and, at low water, impedes commercial intercourse. This is an evil of long standing; and, despite the obvious impediments which it interposes between the craft and the wharf, perhaps no capital has thriven equally in prosperous traffic. It may be that "where there is muck there is luck," and that this circumstance has given rise to the proverb; but any one who has seen the noble quays of St. Petersburg, the wharves at Hamburg, the stone sea-walls at Leith, the granite quays of Dublin with the clean concrete docks—not to speak of Liverpool, and even Paris and every continental town of any magnitude—cannot but think how much the facilities of landing and storing might be increased by the construction of solid quay walls and capacious docks within them, and by commodious wharves. To erect quay walls effectively along the Thames, the foundation should be laid in a line struck from the outer waterway arch of Westminster-bridge, on either side of the river, continued on in an equable curvilinear direction towards the city, and as the pool is much wider in the intervals between the bridges, a large tract of mud shoal would be reserved on either side, which interval should be cleared out and deepened, so as to form floating docks between the quays and the wharves.

These docks being accessible at high water (twice a-day) would be always full and near the level of the wharves, and no portion of the space need be lost, like the mud-bank, but all could be covered by barges perpetually receiving or discharging cargo: these wharfingers would be on a level with their business, and no loss of time could occur, as at present: besides that, the stercor and putrescence which nauseate every observer of the river banks at low water would be wholly removed. The sanitary spirit which is abroad has said enough of the poisonous exhalations emanating from the congested discharge of a thousand sewers, and of the vapours which emit pestilence under a summer's sun, equally pernicious to the operations of trade and to the householders in the vicinage.

Erstwhile that reach extending from Whitehall to the Temple-gardens was called the "Strand," the exuvie of St. Martin's-in-the-Fields and the hamlet of Charing must then have been in those days no larger than a pump spout: the puddle-dock would now be a more appropriate designation. There are, however, some hopes that, in the course of time, the land may here gain on the stream, for a flourishing bed of flaggers in luxuriant vegetation seems to maintain an undisturbed progression, and bids fair to connect in verdure the Temple-gardens with his Grace of Northumberland's *rus in urbe*. It cannot be objected that such quay walls should interfere with business, as the barges afloat on a high level would be much more accessible; therefore the private property of trade must be benefited, whilst the corporate property in the causeway and produce of the river must be equally enhanced—at the same time that a causeway for foot passengers, if not for carriages, might conduce to the city revenues by a toll, and would greatly tend to the liberation of the Strand, Fleet-street, &c., from a too

densely crowded traffic. These ideas are not new: the hideous deformity of the river is the subject of every foreigner's remarks. I have before alluded to the subject in *THE BUILDER*, and proposed a plan for making the base of these quay walls a watercourse for the sewage of London. Sir F. French and Mr. Martin have treated the savoury subject before me: nevertheless, at what is before the eyes often becomes impalpable through use, it may not be altogether out of season to stir up the dregs of this old deposit, in the hope that the urbane inhabitants may at length turn their noses to the remarks of QUONDAM.

\*\* Mr. Martin has just now published an "Outline of a Comprehensive Plan for diverting the Sewage from the Thames, and applying it," &c.,—mainly for the purpose (and very justly) of establishing his "claim to the originality of design, which just now bids fair to be quite smothered by a host of newly created competitors."

#### SIGHTS AND SCENES.

*Fremont's Route to Oregon and California, Egyptian Hall.*—The moving painting showing the journey from Washington City across the Rocky Mountains to California, now exhibiting at the Egyptian Hall, would have been thought better of, if it had appeared before the panorama of the Nile, and the magnificent diorama illustrating the route to India. Moreover the sketches from which it was painted were made before the golden "find" had changed the aspect of the country. There is nevertheless a good shilling's worth of information to be got out of it. They tell a good trait of Colonel Fremont, who, at the close of his toils, and after many dangers, discovered a vein of gold stretching for two miles in a tract of land he had purchased. His followers had shared all his hardships, and braved death for him and with him. Did he divide his mine with them? No. He gave it to them, and they divided it with him!

*Journey to the Tubular Bridge, Regent-street.*—A very charming and effective painting of the Snowdon group of mountains has been added to this exhibition. The views are now made to succeed each other, too, without dropping the curtain, which is a great advantage, and the running commentary given with them is much improved.

*Polytechnic Institution, Regent-street.*—Mr. J. H. Pepper has been added to the lecturing staff here, and is giving some interesting chemical discourses. The institution well maintains its attractiveness. A cheaper and more instructive evening's amusement cannot be found.

*Artists' Conversazione.*—At the closing conversazione on the 27th ult., (Freemason's Tavern), a selection of the works shown at the previous meetings filled the tables, including some capital sketches by Messrs. Bennett, Collingwood Smith, Goodall, and others. Many ladies were present, and the evening passed pleasantly.

*Artists' Amateur Dramatic Performance.*—The same artists who, upon two former occasions, rendered their services, have determined to give a third amateur dramatic performance at the St. James's Theatre, on Saturday, the 18th of May, in aid of the funds of the "Artists' General Benevolent Institution." The object of this institution is to extend relief to all artists in distress, their widows and orphans. The amateurs ask the support and encouragement of the public and their brother artists, to insure that successful issue which their object deserves, and will, we hope, find.

*Amateur Musical Society.*—Those who want a proof of the state of musical knowledge amongst amateurs in England, should attend the concerts given by this society, at the Hanover-square Rooms,—where, by the way, they may see an Earl blowing his own trumpet, and a Lord drawing the long bow—over a violoncello. On the 29th they gave Felicien David's symphony in E flat, and Mendelssohn's symphony No. 3, in A minor, in admirable style. Architects should be musicians.



## NOTES IN THE PROVINCES.

The new bridge at Rochester, in a straight line with the high streets of Rochester and Strood, has been commenced. It is to be of iron, spanning the river in three arches, with the view of improving the navigation. Besides the old bridge itself, a great portion of the east side of Strood High-street, next the railway, is to be pulled down and a good approach formed.—A public meeting has been held at Sheffield to promote the erection of a monument to the late Ebenezer Elliot.—About 3,000*l.* out of 6,000*l.* have been realized for the erection of a second church (with 1,000 sittings, 694 free) at South Banbury.—It is intended to build new schools and a school-house at Clifton, near Rugby, this spring, for the accommodation of 185 children. Mr. F. Wood, of Rugby, is the architect, and Mr. H. Haddon, of the same place, the builder: the estimated cost is 687*l.* 5*s.* The Rev. T. Moore, the rector, gives half an acre of ground for the site and playground. It is also proposed to build new parochial schools for the parish of St. Andrew, Rugby, for which the rector, the Rev. J. Moultrie, has offered half an acre of ground, and the parish voted 430*l.*, remaining from the sale of the workhouse.—A plan to enable parties in possession of steady incomes to purchase building ground for dwelling-houses, has been projected at Liverpool, the payments to extend over a series of years, apparently somewhat on the principle suggested for public and sanitary works, though in this case limited and modified to individual requirements. The erection of the dwelling itself, we presume, is meant to be paid for in shape of adequate rents for a term of years.—New schools have been erected at Northam.—The tender of Mr. George Gray, of Bridlington Quay, has been accepted for the erection of the Bridlington parsonage house. Six tenders were lodged.—A new hall is about to be erected at Sudbrook, near Ancaster, Lincolnshire, in the Elizabethan style. Mr. Goddard is architect, and the builders are Mr. Babin, of Metheringham, joiner, and Mr. Hudleston, stone-mason, Lincoln.—The new baths and washhouses at Trippet, Hull, were opened on Monday week. The portion already completed consists of second-class private baths, large swimming bath, and washhouses. The building is of brick, faced with stone. There are thirty-four private second-class baths: each bath is open at the roof, and the steam is carried off through a tower by a current of air admitted in front of the building. The men's plunge bath is 36 feet by 22½ feet, and twenty persons are admitted at one time. The washhouses consist of fifty-six compartments. The number of persons, says the *Packet*, who bathed gratuitously on Monday, from six A.M. to two P.M., was 922. On Tuesday, when the usual charges of the institution were made, the number of bathers was 392, and on Wednesday there were 350.—The directors of the Bury Mechanics' Institution and Athenæum are about to commence the erection of their intended mechanics' institution, Mr. Joshua Smerk having been appointed the architect. The cost is estimated at 4,000*l.*, about 2,500*l.* of which have already been provided or promised.—The Darlington Waterworks having been completed, the water was turned on on Wednesday in last week. The event was celebrated with bell-ringing, music, and feasting.—The little insignificant village of Springfield, which the really very respectable establishment of the Gretna Green Vulcan and Ironkeeper, Mr. Linton, dignifies and adorns as the big house—once a private residence—has now a village workmen's library and a reading-room, got up by the labouring classes themselves, though assisted by donations. In three weeks there were fifty subscribers and forty volumes, besides newspapers.—The *Scotsman* says that the demand for houses of all kinds in Edinburgh has recently been decidedly on the increase, and the building trade, which has been for many years comparatively dormant there (in consequence of previous speculative exhaustion) seems likely soon again to flourish.—The Waterford Town Council have agreed to apply 500*l.* towards baths and washhouses for the labouring classes there.—The parish church of St. Martin, West

Drayton, is about to be restored, under the superintendence of Mr. Innes. The roofs will undergo a thorough repair; parapets will be built to the nave and aisles, the stonework made new throughout, and the flintwork refaced. Internally, the sittings are to be rearranged, the principal part being new, the walls coated with cement, and many alterations made to improve the appearance of the building. The works will be commenced immediately.

## RAILWAY JOTTINGS.

MANY of the labourers on the Great Northern line, near Peterborough, have been re-employed on the intended station at the Saxon Barn Farm, which also is to be rebuilt at a cost of 1,500*l.*—A girder bridge on the Manchester, Sheffield, and Lincolnshire line, at Gainsborough, snapped in the middle on Tuesday week, while an engine was passing it. The engine fell to the road below. The down train had passed over it only a quarter of an hour before. "Whether the accident arose from some defect in the casting of the girders," says a Sheffield paper, "or from a change in the relative conditions of the molecules by the variation of temperature remains to be ascertained,"—or whether both causes may not have concurred.—It is proposed to place an iron sculpture-cast of a colossal figure lately modelled by Mr. I. B. Leyland, of Halifax, on the Norman arch at the entrance of the Beaconhill tunnel, near the Halifax station of the Lancashire and Yorkshire line. The figure was not designed for this special purpose: it is a colossal human figure in an intensely listening attitude.—"It was Liverpool and Manchester that opened the traffic on railways," says the *Liverpool Courier*. No, insists the *Gateshead Observer*, "the *Courier* is mistaken. Long before 20th November, 1824, the first rail of the first railway had been laid in Stockton-upon-Tees; and in 1825 the Stockton and Darlington Railway, which 'opened the traffic on railways,' was in operation."—A plate-layer on the Caledonian line has been charged, on the oath of the inspector of police to that company, with a contravention of the statute 5 and 6 Vict., cap. 55, in so far as he neglected to see that a red signal was placed 600 yards from the point where he had lifted or taken out a rail from part of the railway. The offence was proved in terms of the statute, and the offender fined in 1*l.*, as directed by the law.—Fares by rail from Shrewsbury to Wellington, eleven miles, are 6*d.* first-class, 3*d.* second-class, and third-class, 1*d.*—Petitions are being presented by railway Companies to Parliament for a repeal of the Act 5 and 6 Vict., whereby a duty of 5 per cent. was imposed on all sums for conveyance of passengers. They set forth that, since the passing of the Act, railway revenues have been reduced by competition and by heavy assessments of another character; and that the remission of the duty would relieve the particular interest from a burden that does not attach to steam vessels or any other description of property.—An official notice of the competition of engineers for a locomotive, the most suitably constructed for conveying goods on the line about to be constructed over the Sommering Mountains, has been issued by Baron Lionel N. de Rothschild, on the part of the Austrian Government. Six prizes are offered, the first being 10,000*l.*, or 20,000 imperial ducats, and the other five respectively 5,000*l.*, 4,500*l.*, 4,000*l.*, 3,500*l.*, and 3,000*l.* Plans and particulars may be had of the Austrian Consulate General, in New-court, St. Swithin's-lane.

CAMBRIDGE ARCHITECTURAL SOCIETY.—At a general meeting on Thursday, the 25th inst., a paper on York Minster was read by Mr. G. A. Lowndes; which was followed by one on the fountains of Cambridgeshire, by Mr. G. Rowe, St. John's College, Member of the Buckingham Architectural Society, illustrated by engravings. The Rev. the President gave notice that the society would meet at Fen Ditton Church, on the afternoon of Thursday, 2nd May, and the conversazione would be held the same evening, at 8 p.m., at the secretary's rooms, in Trinity College, the subject for consideration being the "Transitional Period from Norman to Early English."

## Books.

*A Plea for the Ancient Restoration of our Ancient Parish Churches.* By G. G. SCOTT, Architect. J. H. Parker, London and Oxford.

This is a paper read before two architectural societies, and noticed by us at the time, to which have been added several short essays on connected subjects. Mr. Scott has so recently put before our readers his views on the subject of our ancient architecture, that we will say nothing more just now than this,—that those who desire to see a further development of these views will find it in this volume.

*Iace's Outlines of General Knowledge, and Outlines of English History.* Gilbert, Paternoster-row.

BOTH useful little books. The short chapter in the first, however, on architecture, which ignorantly sets forth amongst other things that we have amongst us six principal styles, the Tuscan, the Doric, the Ionic, the Corinthian, "the Roman or Composite," and the Gothic! should be re-written.

*The Book of North Wales—Scenery, Antiquities, Highways and Byeways, Lakes, Streams, and Railways.* By C. F. CLIFFE. Longman and Co., 1850.

MR. C. F. CLIFFE has here turned out a very companionable fellow to his "Book of South Wales." In the midst of tour-exciting, though by no means inflated, descriptions of romantic scenery, only now (we may say) made accessible, by rail, the more matter of fact utilities of a working hand-book for every one are not forgotten; neither are the antiquities of this interesting region of the empire, although the less interesting are merely indicated: an attempt has been made indeed to embody the marrow of even those recent investigations which have shed so many important lights on Welch antiquity, and to these are added the accomplished compiler's own occasional observations. About two-thirds of the actual itinerary are devoted to the counties of Caernarvon and Merioneth. There is a map, said to be prepared with much care, by J. Dover, of Pentonville-hill, and illustrations are scattered throughout the volume.

## Miscellanea.

NORTH LONDON SCHOOL OF DRAWING AND MODELLING.—This school was opened on Wednesday evening, May 1st, at the large room, St. Mary's-terrace, Camden-town, when there were between 200 and 300 persons present. 180 students have already joined the school, and many more have expressed a wish to do so, but the committee, not having yet made arrangements for so large a number, have been obliged to refuse them for the present. Mr. Cave Thomas, the master, delivered a very excellent address, of which we should give some part but for the pressure on our columns. Mr. Seddon, Mr. Ford Maddox Brown, Mr. Joseph Wilks, and Mr. Warren, then addressed the meeting. Great credit is due to those who have brought this school into action, especially to Mr. Seddon, who it appears originated the scheme. It is in contemplation to open a class for females.

IMPROVEMENTS AT KENSINGTON.—John Ball says that the Commissioners of Woods and Forests are about to make a series of important improvements in this district. The houses in High-street, directly opposite the Queen's-road, newly formed, will be thrown down, and a road will be constructed therefrom into Brompton, so as to give direct communication from the latter place to Bayswater.

ROMAN VILLA IN ENGLAND.—At a recent meeting of the Archaeological Institute, Mr. Birch gave a description of the Roman villa recently excavated near Wakefield-lodge, on the property of the Duke of Grafton. This villa, which is square, and contains ten or eleven rooms, is situated about a quarter of a mile from the London-road, and was accidentally discovered by some labourers while digging for stone. On the east side there is a hypocaust extending under three of the rooms, and there is a pavement, 60 feet in length, composed of rough white tesserae.



**INSTITUTION OF CIVIL ENGINEERS.**—On April 23 the paper read was a "Description of the Insistent Pontoon Bridge, at the Dublin Terminus of the Midland Great Western Railway of Ireland," by Mr. R. Mallet. Also, a "Description of a Wrought-iron Lattice Bridge, constructed over the Line of the Rugby and Leamington Railway," by Mr. W. T. Doyne. This bridge, which is 150 feet span, carries a public road over the Honingham cutting. It consists of two girders 156 feet in length, and 10 feet 6 inches in depth, placed at a distance of 20 feet apart, and connected together by means of wrought-iron transverse girders, and by a system of horizontal diagonal bracing. The transverse girders, 7 feet 6 inches apart, are each formed of a plate of wrought iron, with two angle irons at the top and the bottom: these are covered with corrugated galvanized iron, one-tenth of an inch thick, upon which concrete, and then a layer of gravel and loam metalling, 6 inches thick, are laid. This bridge was erected by Messrs. Smith, Smith, and James, of Leamington, upon a platform which gave to the girders a camber of 7 inches in the centre, which was reduced to 3 inches upon removing the platform. The total cost of the bridge was about 3,500l. During the progress of the works, the author made some experiments upon the strength of rivets of different sizes, from which it appeared, that the average breaking weight per square inch of sectional area, was 35·10 tons for a chain joint, and 18·82 tons for a lap joint. On Tuesday, April 30, a paper was read "On the Absorbent Power of Chalk, and its Water Contents, under Different Geological Conditions," by Professor D. T. Ansted.

**KING ALFRED'S BURIAL PLACE AT WINCHESTER.**—With respect to a statement as to the sale of "Alfred's burial place," quoted by us from the *Hampshire Independent*, we have received several letters denying the existence of any remains at Winchester. One states, notwithstanding the assertion of Milner that Alfred was buried on the site of the Bridewell, that the king was in reality interred at Driffield, in Yorkshire. Mr. Colson, architect, on the part of the gentleman who has bought the land, writes us,—"That if any excavations are made and he should be so fortunate as to find the remains of the great and good monarch Alfred, he will be the first to respect them and to promote the erection of a monument over them."

**PRESERVATION OF ANCIENT PARISH REGISTERS.**—Mr. Downing Bruce has published a letter, addressed to Mr. Monckton Milnes, M.P., calling attention to the present state of ancient parochial registers. We have all heard of the parish clerk who used part of a register, kept in his own cottage, to sing a goose, and this is not a solitary case. Mr. Bruce properly suggests the adoption of some means to preserve documents so important as parish registers.

**INSPECTION OF SUSPENSION BRIDGES.**—In consequence of the late calamity at Angers, the French Minister of Public Works has just formed a commission, to again study all the questions connected with the mode of construction of suspension bridges, and the trials to which they are subjected, and to propose such improvements as they may think necessary in the precautionary measures now adopted.

**YORKSHIRE ARCHITECTURAL SOCIETY.**—On the 18th inst., the accounts of the ex-treasurer, Mr. Bayldon, were audited, and exhibited a balance of considerable amount in hand. The Rev. W. H. Huggall applied for a grant towards purchasing a new font for the Early English Chapel, at Bilton, near Hull, and at the general meeting, at two o'clock, the Venerable the Archdeacon Churton read a paper, creating an interesting discussion on the priory of Mount Grace, near Thirsk.

**THE (LAND) SURVEYORS' ASSOCIATION** has been reformed, with various very important and desirable objects,—such as uniting the legitimate members of the profession, promoting the acquisition of knowledge in the various departments of surveying, and for giving that respectability to the profession which shall entitle it to the confidence of the Government and the public. Mr. J. Bailey Denton is the chairman. The non-appearance of the metropolitan survey by the Ordnance department, although two years have elapsed, gives them a ground of complaint.

**PROJECTED WORKS.**—Advertisements have been issued for tenders, by 7th inst., for the erection of parochial schools and teachers' residence at Wribbenhall, Mr. R. Robinson, of Stourbridge, architect; by 11th, for the erection of three houses with front shops, &c., at Brierley-hill, Staffordshire, same architect; by 6th, for building an additional arch to the Pitlake-bridge, near Croydon (Mr. R. J. Hood, of London-bridge station, engineer), and for park palings adjoining; by 4th, for the erection of a national school for 300 children, and a master's residence, at Sowerby, Halifax, Messrs. Perkin and Backhouse, of Exchange-buildings, Leeds, architects,—separate tenders for the various specific works; by a date not specified, for the erection of three eight-roomed houses and premises at Southampton, Mr. Poole, of 6, Bernard-street, Southampton, architect; by 16th, for taking down and rebuilding a house and premises in High-street, Southampton, Messrs. Hives and Bedborough, of 23, Portland-street, Southampton, architects; by 11th, for the erection of a new aisle to the parish church of Road, near Northampton, Mr. E. F. Law, of Northampton, architect; by same date, for the erection of a new school-house to the parish school of Pitsford, near Northampton, design by same architect; by 27th, for the erection of the Bucks County Lunatic Asylum, at Stone, near Aylesbury, Messrs. Wyatt and Brandon, of 77, Great Russell-street, architects,—also for a large quantity of iron-work for same; by 15th, for a telescope to the gasholder, No. 2, of the Woolwich Consumers' Protective Gas Company, Glass-yard, Woolwich; by a date not specified, for excavating ground and forming about 1,600 feet of brick sewer, also a quantity of glazed pipe sewer as advertised, Messrs. Godwin, of Brompton, architects; by 28th, for the execution of the work of gas fittings to the buildings and station of the Great Northern Railway, north of the Regent's Canal, Maiden-lane, Mr. Lewis Cubitt, of 52, Bedford-square, architect; by a date not specified, for all or any of the works required in erecting a church at Ringley-bridge, near Bolton-le-Moors, Lancashire, Messrs. Sharpe and Paley, of Lancaster, architects; by 20th, for the construction of baths and washhouses, at Preston, Mr. P. P. Baly, of 14, Buckingham-street, Adelphi, and Messrs. Park, Son, and Garlick, of Preston, engineers; by a date not specified, for sinking a well at Southampton, Mr. A. Giles, of 9, Adelphi-terrace, engineer; by 18th, for the erection of a cast-iron gas tank, 103 feet diameter, and 22 feet deep, with telescopic gas-holders, columns, &c., to be put up at the Alliance and Dublin Consumers' Gas Works, at Dublin, Mr. G. Low, of 39, Finsbury-circus, London, engineer; and by 6th, for enlarging and completing a gasholder for the Cambridge Gas Company.

**BUILDING AT BANGOR.**—The Cas Maes Lodrig estate, adjoining Bangor on the south, has been laid out for building villa and other residences, under the direction of Mr. H. P. Horner, architect, and if our information be correct, the scheme is a promising one, as the demand for houses is great in Bangor, and all the desirable sites immediately available are comprised in this property. There have been, we believe, about eighty houses built in Bangor during the last year or so, and more would have been begun but for the want of sites.

**ARCHITECTS' ADVISERS.**—Mr. Editor,—I was greatly amused by one line in a recent *BUILDER*, which shows how that "An Architect" (so he calls himself) having a little church to restore, cannot do so without asking the advice of a set of gentlemen composing the committee of a society—such committee not having a single architect among them. What a pity it is that architects do not pass the so often talked of examination, "so as to enable them to execute any work entrusted to them, whether large or small, without the advice of amateurs."—ANOTHER ARCHITECT.

**CITY CARPENTER.**—Mr. Charles Waterlow has been elected City Carpenter, in the room of Mr. Colebatch, who had held the situation for a number of years.

**ST. STEPHEN'S, SOUTHWARK.**—A new church, Early English, with gabled tower, built under the direction of Mr. Teulon, architect, in Kent-street, Borough, was consecrated on the 27th ult. The district is one of peculiar character, needing help.

**CHEAPENING PATENTS.**—What objection is there to adopting in Great Britain an improvement made, in the last new patent law, in France? It is, to allow the patent to be paid for by twelve yearly instalments, instead of in one sum at first. This has been found a very acceptable amelioration by poor inventors, whilst the Government has, I believe, also reaped some benefit from it, the income derived from this branch of revenue being greater than it was under the old law.—F.

**ARCHITECTURAL ASSOCIATION.**—The subscription of 1l. mentioned in the last number of *THE BUILDER*, was voted to the North London School for Drawings and Models, and not to the National Exhibition for 1851, as there stated.

**PARK FOR ISLINGTON.**—On Tuesday a vestry meeting of St. Luke's took place in the vestry-room to determine whether any, and what, assistance should be given in favour of a new park at Islington. Mr. Lloyd said the area would cover 500 acres of ground, including 200 acres covered by the villas on Highbury-grove, Vale, &c. The cost would be about 150,000l. to 200,000l. A resolution approving of the proposed park was unanimously carried, and a public meeting of the borough was determined to be held forthwith.

**EXHIBITION OF ALL NATIONS.**—We learn from the May number of the *Journal of Design*, that the amount of subscription reported to the commissioners, is about 48,000l., and that about half the local committees have not yet made any report. The Royal Academy has given 500l. Russia, Austria, Spain, Prussia, Belgium, and America are all moving.

**WIDE ESTIMATING.**—Estimates delivered at the office of Mr. J. Bird, architect, for covering in and finishing three houses at Notting-hill, to build completely two ovens (11 and 7 bushels), back office, and stable building, for Mr. A. Urquhart; the quantities supplied by the architect.

Sach .....	£1,740	0	0
Darby .....	1,596	10	0
Lawrence and Son ..	1,592	0	0
Tunewell .....	1,448	0	0
Brass .....	1,438	0	0
Everett .....	978	0	0

#### TENDERS

For the erection of a superintendent's house, offices, and board-room, for the Directors of the Woolwich Consumers' Protective Gas Company, as advertised in *THE BUILDER*; Mr. L. Davis, architect.

Kirk and Parry .....	£1,268
Walker and Soper .....	1,268
Cooper and Davis .....	1,257
T. and R. Corby .....	1,220
Cooper and Bottomley .....	1,167
Tunnett (Woolwich) .....	1,059
Williamson (Plumstead) .....	1,050
Maynard .....	1,040
Taylor and Son (Woolwich, accepted) ..	993

For the chapel, board-room, and four almshouses, for the Licensed Victuallers' Asylum, Old Kent-road, opened on the 25th April; Messrs. H. and E. Rose, architects. The quantities were supplied.

Faithfull .....	£2,608
Corby .....	3,530
Coleman .....	3,444
Soper and Walker .....	3,375
Cooper and Davis .....	3,340
Carteris .....	3,330
Rider .....	3,323
W. M. Hill and Son .....	3,270
Whitlam .....	3,252
Cooper .....	2,988

#### BUILDINGS AND MONUMENTS, MODERN AND MEDIEVAL;

Being Illustrations of the Edifices of the Nineteenth Century, and of some of the Architectural Works of the Middle Ages.

By GEO. GODWIN, F.R.S.,

Fellow of the Institute of Architects; Corresponding Member of several Societies.

Part VII. of this work, price 2s. 6d. was published on Wednesday last, containing views of the Royal Lyceum Theatre; Church of the Immaculate Conception, Farm-street, Grosvenor-square; the Church of La Villette, Paris; St. Augustine's College, Canterbury; St. Peter's Hospital, Wandsworth; the Printers' Almshouses, Wood-green, Tottenham; Custom-house, Rouen; the Chapter-house, Chester Cathedral; with descriptive letter press and numerous details.

Part VIII. will be published June 1, and will complete the work. To prevent disappointment, the names of parties intending to take the work when completed should be sent forthwith.

To be had at the Office of "The Builder," 2, York-street, Covent Garden, or, by order, of any Bookseller.











# The Builder.

No. CCCLXXXIX.

SATURDAY, MAY 11, 1850.

**T**HE Royal Academy Exhibition, which was opened to the public on the 6th instant, is one of very great interest: an exhibition of such general goodness, indeed (with an exception to be noted) has perhaps never before been seen,—and the same remark will apply to the other current public exhibitions which have been reviewed by us as they opened. The Academy Exhibition consists of 1,456 works of art: more than 1,000 (some say 1,400) works were declined, and if we add to these, as we have done in former years, the number of those exhibited elsewhere, namely, at the British Institution, 500; the Suffolk-street Gallery, 735; the Portland Gallery, Regent-street, 373; the Water Colour Gallery, 380; the New Water Colour Gallery, 329; and allow for those returned by the British Institution and the Society of British Artists,—the total number produced during the year, for exhibition in the metropolis, will be found to be at least 5,500 works of art. During this time, too, artists have been turning out dioramas, panoramas, cycloramas, cosmoramas, &c. &c., without end, various panels in the Palace of Parliament have received their subjects, portrait painting has gone on, book illustrations have been multiplied, and the provincial exhibitions, although partly made up of works previously exhibited in London, have not been without their usual number of new contributions. Last year, the total number of works exhibited in the metropolis was 3,796; the number in 1848 was 4,023; but the number submitted to the various galleries was calculated on both these occasions at nearly the same as in the present year.

The exception to the satisfactory character of the exhibition generally is to be found in the room misnamed of "Architecture." The other sisters don't behave well to poor architecture, their elder, and have nearly succeeded in elbowing her out of house and home, although they will, perhaps, want her presently to provide a decent and fitting residence for themselves. Unfortunately, too, the collection of architectural works grows "small by degrees" without getting "beautifully less," many of those admitted having little to recommend them except fair drawing. In 1848 there were 113 architectural subjects; in 1849, 105; and now, out of 190 works which the room contains, there are but 87 which can even pretend to that title. What principle guided the hanging committee in their acceptance of architectural works for exhibition, and what was the character generally of those rejected, we cannot say, but we can assert of our own knowledge that several drawings were turned out which were fully entitled to be received. We are quite prepared to admit that it is, in a pecuniary point of view, of much more consequence to the painter that his picture should be hung than to the architect, and we can appreciate any efforts on the part of the council to afford this advantage to as many painters as possible: the extent of distress and anguish caused every year by rejection is

known only to few. Still, as the organ and advocate of architecture and the architectural profession, we cannot see this displacement going on without an earnest protest against it. Believing, as we do (and as we have often said), that the public exhibition of designs is an important means of improvement for the art, educating the public and stimulating architects, we must object to the additional space required for painting being obtained at the expense of this aid to architecture. More room is needed, and more room must be had.

Of the eighty-seven architectural works exhibited, one-third are representations of churches, mostly fair adaptations of ancient models, nicely drawn. Some of the buildings exhibited have been already illustrated in our pages, as, for example (1128), "St. Martin's Northern School, Castle-street, Long-acre," by Mr. Wild; (1130) "The City of London Workhouse," by Mr. Tress (as little like a workhouse as it is possible to conceive any thing); (1193) "The Small-pox Hospital," exhibited by Mr. Boyce; and "St. Aidan's College, Birkenhead," by Messrs. Wyatt and Brandon.

The last-named architects have also (1220) "View of the new Gateway at Deane Park, Northamptonshire," and (1274) "View of Trinity Church, St. Pancras," in course of erection.—Mr. Dawkes exhibits (1117) "The Abbey Hotel, at Great Malvern," a large building, late Tudor in style; and (1229) and (1269) interior and exterior views of the proposed "Church of St. Thomas, Newport." The latter is of the Decorated period, and has a massive square tower, with open battlements and large turret at angle.—Mr. Ashpitel has made a nice drawing (1127) out of "Selections from Palladio," including the church of the *Redentore*, the *Palazzo Thiene*, the *Ponte Trionfale*, Basilica at Vicenza, &c., drawn to the same scale.—Mr. Angell, in 1166, "Palladiana," has carried the compilation further. (1185) "The Works of Vignola," by the same architect, is the drawing exhibited by him at the Institute in illustration of his paper on Vignola, printed in our columns. It includes the *Villa Papa Giulio*, the *Palazzo di Caprarola*, and the "Five Orders" according to this master's views.—Mr. Pugin has two or three small drawings, the principal of which is (1227) "St. Leonard's College Chapel," showing mainly the rood-screen.

Mr. Fergusson exhibits a drawing which will challenge criticism (1192), "A Design for a new National Gallery for Painting and Sculpture," a Greco-Italian building of large size and height, to occupy the site of the present building, and extend northwards as far as Hemming's-row.—Mr. Scott shows (in 1210) "A Restoration of the Chapter-house of Westminster Abbey." The frame includes a view of the—at present—desecrated Chapter-house, beautifully drawn, with four smaller drawings around it,—the entrance from the cloister; the eastern stalls, coloured; the inner entrance, and the vestibule.—Mr. P. C. Hardwick gives the "New Town Hall, Durham" (1196), with good open roof and fire-place; and (1226) "The New School and Master's House, Brington."

We shall look at the architectural drawings a little more in detail next week; and will now speak of a few of the principal pictures in the other rooms.

Amongst those who have contended most successfully in the arena of fame, and "whose laurels are but fresh upon him," is Mr. F. R. Pickersgill, A. Although his productions have ever been characterized by high qualities,

nothing he has hitherto done authorized a belief that so important an achievement was so soon to emanate from him, as (16) "Samson betrayed." The subject is admirably conceived throughout,—the Delila powerful without being coarse,—and Samson a fine impersonation of torpid strength. Its chief charms, however, exist in the roundness and pulpy appearance of the flesh, and beautiful arrangement of colour in the draperies.

(15) "The disarming of Cupid," W. E. Frost, A., being contiguous to the above, looks hard and weak compared with the remembrance of the artist's singularly exquisite "Una," "Diana," and other pictures of former years. The great danger of this attractive and refined adaptation of nature, in conjunction with the highly beautiful "conventionale" of the antique, consists in the likelihood of imitating and repeating oneself; and, however unexceptionable these productions may be in every other respect, the absence of novelty goes farther towards weaning admirers than Mr. Frost seems aware of.

(39) "King Lear," act iv. scene 7, C. W. Cope, R.A., illustrative of the filial devotion of the misused Cordelia, affords ample scope for the poetical comprehension of the painter, and is executed in the honest, powerful manner that distinguishes him from the ephemeral twaddlers, who recognize handling as the soul of the art. Cordelia, in accordance with the text, bends in affectionate solicitude over her confiding and mistaken father, whilst he, the wreck of "every king a king," reposes in childish helplessness. One can imagine the feeble beatings of his pulse, which the physician is so intently observant of, as he bids the musicians who are in attendance to awaken him, by their dulcet strains, to a recollection of himself.

(56) "The Gross of Green Spectacles," D. Macleise, R.A., is a pendant to "Preparing Moses for the Fair," elaborated in the well-known style of Macleise; and if not equal to his best depictions, no other name could possibly be attached to it. (160) "The Spirit of Justice," an oil painting of the fresco in the House of Lords, is an allegory, embracing the leading points, and characteristic of the subject in a manner as evincive of high intellectual capacity as of cultivated taste and power. The embodiment of the "guilty one" is marvelously fine, and indeed throughout the performance the propriety of expression is wonderful.

(67) "Macbeth," act 1, scene 3, C. Stanfield, R.A., representing the meeting of the Thane of Cawdor with the weird sisters. Imaginative composition is not the forte of Mr. Stanfield: in the perfect delineation of reality, with much perception of what is most picturesque, and the ability of rendering truthfully the most difficult and transient effects, he excels supereminently. (131) "Scene on the Maas, near Dort—Market People waiting for the Evening Tide," is a remarkable instance of this: the luminous quality of the positively moving water, and the charming warm glow, so peculiar to the effect described, that pervades it, make it one of his most happy results.

Mr. Leslie, whose consummate knowledge of art and its appurtenances enables him to do wonders without appearing to be aware of it, contributes a lovely creation from the never-dying "History of a Foundling," (125) "Tom Jones showing to Sophia Western herself, as her best Security for his Good Behaviour." Without any of the artificial attractions, he at once arrests attention and excites admiration by his pure innate feeling for grace and unaffected notion of elegance and loveliness. We never saw a Sophy Western so completely agreeable to our ideas as this *ideale*. (136) "Scene from Henry VIII.," wherein the dying Katherine charges Capucius with a Letter commending her young Daughter to her Father's Goodness,—and a *piquante* (95) "Beatrice," are worthy this potentate of the pencil.

In a rendering of the often repeated "Meeting of Jacob and Rachel" (92), Mr. Dyce, R.A., leaves an impression equal to the effect of anything in the collection. Influenced by his love for the severe, he has not extended it to that heterogeneous defiance of nature observable in younger disciples of the school: he has produced a perfect picture, and the manner of treatment, far from being suggestive of pedantry, is beautifully in unison with the subject, and implies an exalted sympathy with the feelings of some



masters, not a servile attempt to imitate. The cool silvery grey key of the work is in excellent keeping with the conception: as a whole, it is a performance of which any country might be proud at any time.

(106) "Simchath Torah"—The Rejoicing of the Law. A large and finely-painted portrayal of this ceremony, in which Mr. Hart, R.A., shines to more than usual advantage.

(98) "A Cherry Seller," T. Webster, R.A., an every-day episode, susceptible of all the exquisite peculiarities of this emulator of great Dutchmen: the extreme nicety with which the fruit, vegetables, and objects of still-life are represented form but a secondary source of marvel, to the delicious character and expression of the figures. A devotion to the study of nature, and appreciation of the peculiarities of Teniers, Ostade, and Gerard Dow have formed the basis of Mr. Webster's admirable style.

(169) "The Escape of Francesco Novello di Carrara, Lord of Padua, with his wife, from Giovanni Galeazzo Visconti, Duke of Milan," C. L. Eastlake, R.A. (a repetition, if we remember rightly), is an almost faultless specimen of drawing and careful laborious finish, but is wanting in energy and force of effect. (72) "The Good Samaritan," superlatively excellent in many respects, is flat and weak, and not equal to "Christ Weeping over Jerusalem."

(174) "Mercury sent to admonish Æneas," J. M. W. Turner, R.A. This mighty genius, after comparatively retiring, to live, as we thought, content with his glories achieved, bursts out anew in all the vigour of years gone by, and seems to determine on doing as much again as he has already accomplished, awaking like a giant refreshed. The fallacious MS. of the "Fallacies of Hope" continues to supply him with something to dream of, out of which he has shaped most gorgeous effects of light and air. The middle portion of this picture vies with anything he has ever produced: it is morning mist itself that so miraculously refracts and spreads the light.

(189) "A Dialogue at Waterloo" is a striking specimen of the power over material of Edwin Landseer, likely in itself to constitute a lasting testimony of greatness. It is imbued with unmistakable Flemish character. The group of peasants to the left, with all the objective matter, are painted as no one else could paint them: the insinuating naïveté of the vendor of curiosities (French eagle and identical bullets that Wellington fired at Bonaparte), as she, ignorant of the personage whom she addresses, expatiates on the victory, is excellent: the Duke seems to be pointing out some particular spot to the Marchioness of Douro. The old boor, who observes attentively the illustrious visitors, seems to have an indistinct knowledge of the face, which few forget. With all its excellence, however, the work is inferior to some productions of the same hand.

#### THE ARCHITECTURE OF THE DAY.\*

BUT little use has been made hitherto of the Arabian and Oriental architecture generally; yet the light of genius and science is on much of it. Its authors have not paid any uniform obedience to nature, or had any steady guiding principle; but, being a highly poetical and imaginative people, and having thrown the reins upon the neck of their fancy, ever warm and active, a good deal of an elegant and gorgeous character, and many sublime effects, have been produced. Of some important principles of art they had no idea, but they have produced much picturesque grouping and combination, and, in their surface decoration, rich and graceful results. One source of ornamentation is suggested by this architecture which we have little drawn upon—the use of geometrical forms, in which there is a wide field for decorative design, and a very elegant and rational one. The Arabians brought their mathematical skill into great play in their decorations, and it was not absent from their constructive science. No style so full of geometrical figures, or more interesting to the geometriician. With such decoration we might still combine something of the material forms of nature, or we might take the latter as the basis, an abstract of such forms, most of

which, in the hands of the real artist, are at least suggestive of grace, pregnant with beauty.

At the same time it should be understood that beauty of form, of general outline, and harmony of colour, is the great desideratum, and that profusion of ornament, as in the Moorish mosques, or in Henry VII.'s Chapel, is to be avoided. The eye soon wearies of such, and seeks repose. We want ornament, judiciously and tastefully applied; the more concentrated the greater its power, as it receives value from the adjoining plain surfaces. Small apartments, as rich cabinets, rooms seldom used, should alone receive this universal embellishment.

When these things are better understood, when we are more alive to the suggestions of nature and of foregone art, we shall have more variety of architectural form in our streets and towns, which do not at present exhibit, either in the plan or section of the houses, sufficient use of curvilinear terminations: circular, segmental, as well as octagonal, and other projections, in the nature of bows and bays, forming oblique angles with the front, give gradation of light and shadow: domes, vaulted and segmental roofs, might, in buildings of pretension, be more used exteriorly; and our increased resources, as regards material, may soon enable us to do so to some extent. Among other valuable qualities secured by the new railway shed at Liverpool, the beauty of its unique gable, and of the fine segmental sweep of its roof, should not be lost sight of: such forms give a happy and agreeable character to an architectural group or street. A curved object has the sun's rays falling on its surface at different angles, and hence an endless gradation, blendings of light and shadow, ever varying effects, reminding us of the natural landscape, and which no other means could ensure.

Now we are not to dispense with any beauty of form because the materials that time and usage have sanctioned will not produce it. The objections to the use of certain materials, I consider, are groundless. Nature, I may say Providence, has presented us with them. Why should we not use them? If we cannot execute a certain form in one material, we have a right to resort to another. Let our designs embrace the grandest and most beautiful forms which we can conceive, and let us construct them as we best can, and with what materials are to be obtained. Structural science is secondary and subordinate to design: we should not be cramped in design, because certain forms cannot be executed without the assistance of iron, or some other material not recognized among architectural appliances, or by the regular, or more mathematical, methods of construction. If the conception and design be fully executed, and that in a firm and substantial manner, and the building discovers nothing false, no parts that are useless either to the design or construction, it matters not what its structural attributes are, what latent means have been used to secure its firmness and durability. We have a right to avail ourselves of the discovery of new building materials, and the advancement of mechanical science.

Cast-iron ornaments have also been spoken against, and entirely denounced. Now, admitting the validity of many of the objections urged against them, I cannot but consider their use as defensible on certain conditions, and under certain circumstances. If it be done with judgment and moderation, it is justifiable, and will, moreover, serve to characterize the age. The advanced state of science, which puts such a practice into our power, we should surely so render available. Would not the ancients, would not the Lombards, the Venetians—whose works are so justly admired—have done so? If such ornaments exhibit mind and feeling, and they may exhibit both, it matters little how they have been produced, whether by the hand or by machinery. It is a limiting of man's rightful resources to restrict architectural ornament to what the hand can produce. Much has been done clumsily, without life and sentiment, in the way of ornament; and much has been overdone, through the facility of producing it; but its being produced by machinery does not necessarily imply its being lifeless: life and feeling may be conveyed, from the heart and head, through other vehicles than the hand;

the spirit frequently evaporates in its passage through such vehicles, but it does not of necessity do so.

At some of the impediments to progress in architecture I have already glanced in the course of the preceding remarks, but there is one which, before I conclude, claims more particular notice, viz., the want of genuine criticism. Most of the criticism found in itineraries, in the literary department of works illustrating architecture, and in others of a similar nature, is written in Cimmerian darkness as to the true nature of art. Erroneous principles are disseminated and popular errors confirmed by these works. They may tell you whether the building under notice be conformable to some idea of the beautiful in their authors' minds, but whether it be true to the natural and eternal principles of art you must elsewhere discover; for, without referring to any received principle at all, they pass sentence upon the work, or perhaps arraign it before a tribunal which the architect does not acknowledge, and condemn it for wanting qualities which he may have studied to avoid. A building is sometimes "heavy," and is condemned for no other reason, when, in truth, heaviness was a necessary expression. The pseudo-critic is, of course, unaware that there are various orders of beauty, a beauty of the Doric, as well as of the Corinthian, of the Hercules, as well as of the Antinous. Proportions are frequently found fault with, just as unmeaningly:—one part is said to be too large or too small for another, when—which is sometimes the case—no law exists for adjusting their relative sizes.

There are critics that merely echo the public opinion, which is generally superficial, and at first incorrect: their writings do not guide, but sanction, public taste: as they follow in the wake of society, they are the least mischievous, perhaps, of any, though of course they foster prejudices: but alas for popular art-culture, if no better light be shed upon its path!

The best way to thwart the influence of false criticism is to waken the dormant faculties, and educate the æsthetic perception of the people, by the diffusing of art-literature, or rather by aiding and increasing its diffusion. On architecture, as one of the fine arts, more light should be generally shed among all classes. We want works upon it divested of technicalities, and in which the subject is popularly treated: not that every man may become his own architect,—such a result need not be apprehended: the technicalities concern only the artist, and power resides not in them; but there is a vital part which concerns every man, and the spectator should be taught, and enabled to commune with the artist, as with the poet, through the medium of his works.

This would be more easily accomplished, I think, than is supposed; at least, the educated part of the public would not be long in imbibing true principles of criticism. "A taste for architecture," as Schlegel observes, "seems to form the basis of every other artistic taste;" men are oftenest within the sphere of its influence; and it has a link, in the strength of its associations, that unites it to all. To none of the arts of design does association more tenaciously cling: than architecture, nothing is more powerful in evoking the spirits of the past, or fraught with recollections—which appeal to the loftiest feelings—of all that is great in the annals of our country and the world. History is said to be written in blood, and there is perhaps too much truth in the observation; an edition not less legible is, however, written on stone, and the footsteps of modern civilization may be traced on the great buildings of Europe, which record the history not only of nations but of families and individuals. Strange, but fascinating, are the feelings which have come over us whilst visiting some celebrated architectural relic—be it of "solemn temple or gorgeous palace:"—the deserted halls are inhabited still by shapes and shadows of memory. We wander from one apartment to another, communing with a past age, and feeling as if transported centuries back in time, and made one more actor or spectator in scenes long past away, but again brought up by the magic wand of art, and still present to the imagination.

But there are other evils to be deplored besides those arising from false principle in design. No design, however great its merit,

\* See p. 209, ante.



can possess any real charm unless it be well executed. Good material and good workmanship are essential to a fine building; and there is nothing more insulting to art, more degrading to its professors, or that is a fouler blot on the fair face of nature, than the myriads of *mal-built* dwellings that have sprung up under the present system of competition—a system against which every lover of art should raise his voice, but which has been too little rebuked by the literary organs of the day. It is a hypocritical worship of the beautiful to aim at giving an architectural character to a building, while neglecting every principle of durability and strength, and thus yielding it up, from the hour of its foundation, a prey to premature decay. Compared with such erections, the wigwag of the Indian is a bower of bliss; it is constructed in obedience to nature's instinct, and outrages no art. Goodness of execution must be held not less important than beauty of design. If, in our wanderings through the streets of a town, the houses appear substantially built, and sufficiently large to contain comfortable accommodation, and show, by the variety of their form, position, and arrangement, that a corresponding variety in the disposition and habits of their occupants has been provided for, the mind is pleased and satisfied, though there be little or no provision for architectural beauty. There is a beauty in the evidence of comfort, accommodation, and adaptation to habits of decency,—of a sphere being afforded for the exercise of the virtues and affections,—there is a beauty in fitness, and propriety, and truth,—that must ever charm the reflective and honest mind, and go far to compensate for any æsthetic defects or omissions.

It is this that gives the charm to the country homestead, the humble cottage on the mountain-road: *there* is no vain pretence, no hypocritical display of art. It is the offspring, not of pseudo-taste and real avarice, but of common sense; and is adapted to the comfort and accommodation—to every convenience the simple nature of its inmates demands. A moral halo surrounds such dwellings; and the mind of the spectator is pleased and satisfied; he sees nothing that grates upon his feelings, nothing but what harmonizes with his idea of social comfort, of virtue and happiness. Ardent lovers of art though we are, we must appreciate such qualities as these, and should recommend convenience and comfort, spaciousness and stability, before style, and anything before hypocritical pretence.

This brings me to a subject on which I have long wished to speak—the state of the dwellings of the labouring classes, or rather of the very poor. Model-houses are establishing in London: something of the kind are needed elsewhere. We want dwellings for the poor, accommodation for comfort, cleanliness, and decency, not merely inclosed spaces in which it is barely possible to endure life, but homes, in the English sense of the word. Let the hovel of the labourer be compared with the mansion of the merchant, bearing in mind that they are inhabited by creatures in the same divine image, and who would not be shocked by the contrast? Nay, I consider that a picture of many of our court-houses, placed in juxtaposition with one of the better class of stables, would be a sufficient satire. Why should any houses be so constructed that the rules of decency cannot be observed? Humanity is as beautiful, hath music in it as sweet, in the cottage as in the palace; and the comfort and happiness of those in the vale of life, and the true interest of the more favoured of fortune who look down on them from their heights, are objects equally dear to every real philanthropist.

The defects of these dwellings are legion: quality, quantity, character, arrangement, are alike wanting. Some, that but little fault could be found with in other respects, are so small, that they would be suitable residences only for a race of pigmies. So far from being model houses, they are models of houses, and would seem to be built on the supposition that the poor are not even of the same stature as the rich. "This," I know many would reply, "is owing to the limited means of the poor; they might have larger houses if they could pay for them." But I am quite sure the poor should have larger houses for the money they do pay, and *would* have, if humane and wealthy indi-

viduals, who would be satisfied with a reasonable interest for their money, would undertake the task of providing them. A noble and philanthropic undertaking! The building of houses for the poor has been hitherto left to the speculator, who must have an usurious interest in return. While the man of 500*l.* a-year and upwards pays 5 per cent., or less, on the value of the house he occupies, the labourer of a guinea a-week pays from 10 to 15*l.*

I should have dwelt more on those sanitary requirements for which it is the province of the art, assisted by science, to provide. But, "just, eloquent, and mighty Death" has, within the last twelve months, taken up the argument, and given a lecture so awful, that little is left to be said, and the subject is rendered almost holy ground. With a clearness that throws all human investigation into the shade, this dread commissioner has made his report upon the sources of disease in this country, which science should long ago have discovered, and which science or art should long ago have sealed. That what has passed will convince the most obtuse of their errors on this most important subject, and lead to a due consideration of, and obedience to, the conditions on which alone public health may be secured, it would be uncharitable to doubt.

SAMUEL HUGGINS.

#### NEW METROPOLITAN BUILDINGS BILL.

ON Saturday, April 27, a deputation from the committee of the Master Carpenters' Society, had an interview with Lord Seymour, at the office of Woods, respecting the new Buildings Bill. His lordship went through the various clauses carefully with the deputation, and promises his best attention to the suggestions of the various deputations from the builders and district surveyors, but feared that, owing to the difficult nature of the bill, he would not be able to introduce it this session of Parliament. The deputation made the strongest objection, as we have already done, to the threatened abasement of the referees. Mr. Bird desired very much to impress on his lordship the desirableness of having the referees to sit in open court, as magistrates do, with the registrar as legal adviser, in case his knowledge were required, the same as the clerk of the existing police courts, and to keep record of the proceedings.

#### A PRINCIPLE OR A PRINCIPAL,—WHICH?

It is with much regret I learn from your paper last week, the retirement of "J. F." from a conflict which I have watched with great interest, and in which, were my humble services likely to be of any use, I should give in my cordial adherence to "J. F." in all essential points, except one in his last letter, which was very possibly a slip of the pen. When, in his first rule, he says we are to plan a building with reference solely to its actual purposes, and to no past style, I perfectly agree with him; but when, in rule 3, relating to ornament, he repeats the same clause, I must humbly differ. For the word *no*, I take the liberty of reading *every*,—with reference to *every* style known to the designer, and to *every* accessible source of artistic precedent, copying nothing, but digesting and assimilating everything containing nutriment, be it from old Egypt or young America,—from polished Greece or the savage isles of the south; but swallowing nothing unchewed, adopting nothing without a distinctly understood reason, and insisting that neither antiquity nor novelty are any reasons at all.

I should not have troubled you with this remark merely to correct "J. F." who, I am quite sure, has too much erudition and intelligence ever to follow literally his own rule in the form he has here inadvertently given it; but to save, perhaps, some young reader of his letters, the time and trouble that would be inevitably wasted in any attempt to carry out a method of design which never *has* led to any excellence, and I firmly believe never *will* lead to any; while the method I would substitute is traceable in all the forms of past excellence, and more in proportion as they are more excellent. I need not remind you how all late researches in the east add

accumulated evidence that the Greek system was a general fusion (thoroughly digested and Hellenized) of choice ideas, picked out from the buildings of many tribes in all three continents. And of the only rival to that system, the same is abundantly evident. But for the crusades, filling Europe with travelled observers, our ancestors might have wallowed in Romanesque barbarism till the "Renaissance." The finest form of half-developed Gothic, that which we term Early English (and which every examination more fully convinces me was mainly the composition of a single mind), not only retains undisguised the Arab element of foil-arching, but is pervaded with ideas drawn from the Roman, Byzantine, and especially ancient Greek sources, engrafted on the improved Romanesque stock just where they were wanted (and nowhere else), and all ground down and assimilated in the powerful transforming gizzard of some great, but now nameless artist. Mitford, in his "Principles of Design in Architecture," well remarks of Salisbury Cathedral, that its designer could not have been unacquainted with either the Roman or Grecian styles. Himself doubtless a crusader or pilgrim, he had certainly seen the Greek remains, and seen them to more purpose than either Stuart or Leroy.

As the great question, however, of mimicry or reality is for the present stopped in your columns, my object now is to ask whether you will admit the discussion of another, which, though it may seem trivial compared with the above, has yet no small bearing on the architecture of the day, even if not involving (as I think it does) the fate of a principle very generally followed in ancient and mediæval practice, and held up by all modern theorists (though with small effect on our practice), viz., the principle of constructive and decorative truth or consistency,—the second (if I remember right) of Mr. Ruskin's lamps, and which should have been the first. The fact is this,—having very early in my studies encountered this principle, and become strongly biased in its favour, I soon found that it applied to all the admired productions of the past, with one notable exception, the Gothicized timber roof, of which Westminster Hall is the great generic type. To my admission of this principle they offered a stumbling block, nor have all my efforts sufficed to reconcile them. Years ago I was forced to conclude, that if this be really a principle, the admiration bestowed on these roofs must be all along misplaced; and that if they be right, this supposed principle is moonshine, and architecture is (reversing Mr. Pugin's definition) *constructed decoration*, and nothing more. Which should be condemned, the roofs or the principle, remained, however, with me an open question, till, finding that, to escape the hollow mockery of practising an art on which I had no fixed principles, some decision on this point was necessary,—and increasing weight being continually thrown into that scale which was, I own, from the outset rather preponderant,—I at length decided—for the principle and against Westminster Hall and its class.

You see, Sir, this question will, if worth arguing, touch directly on present practice; because, if (as I hold) Gothic open roofs are altogether inadmissible, it will follow, first, that with all our Gothic copyism, we have not made a true copy yet; and secondly, that in the innumerable modern churches where the funds are inadequate to vaulting, the adoption of the Gothic style has been a mistake, that style being applicable only to vaulted buildings. The first conclusion must needs be unpalatable to all who have built Gothic churches, the second to all who wish to build them; besides which I must expect the unrelenting opposition of two other classes of professors, viz., all the trouble-sparing and all who are grossly deficient in geometry and statics; because the requirement of vaulting in any work on which they were engaged would give to the first much more extra trouble than extra per centage, and would expose the incompetency of the second. Indeed I cannot think of any one improvement (except a strict diploma system) that would so tend to purge the profession, as a recognition by the public of the manifold advantages of real Gothic (or compressible) construction, and an exaction thereof now and then. Of course, I do not imagine it would drive out all pretenders, and leave us only true artists; but



assuredly it would exclude all who are not decent elementary geometers. And who shall say, Sir, that the public never will require such a return to genuine and permanent construction? They can pay for deep chancels, useless buttresses, grinning corbel monsters, and fifty costly but vain expedients for dressing up a barn into a sham Romish mediæval church, and why not for rendering a church durable, monumental, and truthful in its artistic treatment? As "J. F." once remarked, John Bull is penny wise when he sees the pence go for no object but to keep up false appearances or mask a hollow deception; but show him solid advantages, and he can be pound foolish, and even afford a little merely to carry out a principle (which we do not ask).

E. L. G.

## ROOF OF WESTMINSTER HALL.

I HOPE you will allow me to intrude a few lines in your journal in answer to some observations by a writer in the *Athenæum* of the 27th April, with reference to Westminster Hall roof, which he appears to condemn both in point of principle as well as design. I believe before we condemn such a work we should first look at the object that was intended, and instructions perhaps given by the royal master to the architect, to construct a large room for a particular purpose, with as few obstructions as possible, and one that would be feasible, imposing, and grand. Supposing these, Sir, to be the instructions to the architect, I would ask whether it were possible to construct a room and roof wherein these essentials have been so fully carried out as in Westminster Hall. We here find a room 290 feet in length, with a span of 63 feet, constructed of timber, and which has stood the test of ages from the time of Richard II. to the present century, a period of 470 years. Had this roof been so defective in construction or faulty in material, would it have remained an example at the present day? At the present time, wherein some of the largest roofs have been constructed in point of span, I would ask if the attempt has been once made to construct one of them of the material recommended by the objector, viz., stone? We find them either of wood or iron, and very beautiful many of them are in point of construction and effects. It might serve as a very useful lesson if any good practical man of the present day would present us with a constructive roof in stone of the same dimensions as Westminster Hall, and entirely free from internal supports, and would at the same time give us the estimated difference of cost of such a roof constructed of stone or timber.

W. T. T.

## ARCHITECTURE AND DECORATION ABROAD.

MONS. F. KREUTER, the architect to the King of Bavaria, is about to construct for his Majesty, in Munich, a "Winter Garden." It will occupy an area of 40,000 feet square, be constructed wholly of iron and glass, and cost about 50,000*l*. The rigour of the winter there enforces the use of double glass inclosing a certain quantity of air, as a bad conductor. Mons. Kreuter has recently been in England to obtain information as to baths and wash-houses, and other ameliorating institutions, the foundation of which is contemplated by the King of Bavaria.—One of our correspondents, in Vienna, complains greatly of the injury done to the profession there by some architects who have become contractors, and contractors who call themselves architects. In Vienna, he says, all respect for the profession has been destroyed.—At Berlin they have nearly completed a new theatre of large dimensions and great magnificence. It is to be called the "Theatre Frederick-William."—In the February number (1850) of the *Journal de l'Architecture et des Arts relatifs à la Construction*, a well-constructed periodical, published in Brussels, plans, section, and description of the model lodging-house in Spicer-street, Whitechapel, and a view of the school-house in the parish of St. Martin-in-the-Fields, London, are given with due acknowledgment to THE BUILDER as the source of their information.—At Nîmes a church has been erected, from the designs of

M. Questel. It is dedicated to St. Paul, and is in the style of the buildings of the twelfth century remaining in France. According to our authority, it is fitted up with great splendour, with mosaic pavement in the choir, a splendid ciborium, stained glass, carved stalls, and mural paintings.—Several important works of decoration in some churches in Paris have just been completed at the expense of the municipal administration. In the church of St. Gervais, says the *Revue des Beaux-Arts*, which has been receiving embellishments for these ten years past, and is now one of the most remarkable edifices of the capital, a new chapel has been painted in fresco by Mons. Caminade. The walls, columns, and groinings of the vaults are further enriched with arabesques, &c., in gold and colour.—In the church of St. Merry, a new chapel has been decorated with frescoes by M. Sebastian Cornu.—Mons. Galinard has finished a large mural painting, representing the four evangelists, which will complete the decoration of the choir of the church of St. Laurent, at Paris. It was commissioned by the *Prefet* of the Seine.—Two newly-purchased pictures have been placed in the Louvre, one a landscape by Hobbins, the other a portrait of an Augustinian monk, by Velasquez, painted in 1643.

PRINCE ALBERT ON SEWAGE MANURE.  
A NEW APPLICATION OF AN OLD PRINCIPLE.

AMONGST the thousand and one suggestions, schemes, and inventions, of all those who have of late years been ransacking either their own ingenious brains, or the various records of past inventions, for the adaptation of all sorts of principles, practicable or impracticable, in the endeavour to realize one of the most important and vital problems of the age,—namely, the adoption of some one simple and efficient organism for the proper elimination and removal of town sewage, and its conversion from a deadly nuisance into a valuable agency of fertilization and life,—it is somewhat singular that it should have never occurred to any one of them (so far as we know) that the simple and practical hydrostatic principle applied—for example—in the filtration and purification of the Thames water, might, in some elaborated scheme or other, have been adopted, with the twofold view of at once clearing the sewage water of towns of its noxious effluvia and at same time condensing and separating its fertilizing sewage into portable and valuable material for the cultivation of the soil. True, ends more or less nearly identical have been proposed to be reached in various ways—as by chemical precipitation, and by comparatively tedious and cumbersome subsidence,—but never (if we mistake not) by such means as this,—so simple, so economical, and so effectual.

The application of the principle alluded to is, in detail, simply this: to form a tank, with a perforated false bottom, on which a filtering medium should be laid; and at one end to admit the sewage into the tank below the false bottom, when, according to the principle of water regaining its own level, the sewage liquid will rise in the tank through the filtering bed to its original level; and, provided the filtering medium be of the proper nature and of sufficient thickness, it will be thus freed from all mechanical impurity, and will pass off into the drain, at the other end of the tank, as clear and clean as spring water, while not only would all the solid manure of the liquid sewage be collected, in a rich deposit like guano, below the false bottom of the tank,—but, according to the chemical nature and composition of the filtering medium, much of the matter still in solution, even while thus being separated from that superabundant or insoluble quantity which floated in mere suspension, might be chemically fixed in the matter of the filtering medium itself, also into manure of the richest quality. The singular power of some soils to absorb the salts of solution in aqueous manure, and to allow the mere clear water only to escape, is at present, we understand, engaging the attention of able experimentalists; and therefore the most proper elements, or artificial soils, for a filtering medium like this will doubtless soon be satisfactorily ascertained; meantime, those actually used—for this is no

mere speculative suggestion, but an apparatus already in experimental operation—are charcoal, gypsum, and clay—themselves of positive value in the agricultural treatment of soils.

Besides all this, the utility of such a mode of dealing with sewage,—a mode, be it noted, easily, cheaply, and at once applicable to every existing form or arrangement of sewer or drain,—is really by no means dependent on the decided or foregone preference of solid manure to liquid sewage; for even on the idea of Lord Brougham and others, as to the singular value of a clear and dilute solution of the soluble salts of manure in watering soils or crops, here is their most handy instrument, in the upward, rapid, and effectual filtration of liquid sewage, only in this case through such a filtering medium as shall not absorb all the valuable salts in solution.

Having thus briefly placed this new and important adaptation of a known principle before our readers, standing as it does simply on a few of its own leading merits, we may now, in conclusion, state that the author of the suggestion is Prince Albert, who, while recommending it to the experimental consideration of the Royal Agricultural Society of England, modestly disclaims all desire to decide between the merits of the solid and the fluid form of sewage for ulterior purposes, as well as all desire to appropriate as his own anything but the adaptation (and a happy one it is) of this peculiar mode of filtration and separation to a twofold purpose which he feels to be of the utmost importance—to all, in a sanitary view, and to agriculturists, in the attainment of a series of profitable and increasing returns from the soil which they cultivate. As one of the governors of the society, his Royal Highness transmitted to the council, through Colonel the Hon. Charles Grey, the detailed communication from which we have drawn these few particulars; and we cannot help remarking that such a communication constitutes a striking evidence not only of an active and ingenious mind, but of a rectitude and excellence of spirit and of motive, as prevailing in the most influential of all directions, that is truly refreshing, as it is most auspicious to the destinies of an empire, on which the same clear head and right heart is also at this moment concentrating the attention and the sympathies of all nations, in the universal brotherhood of mutual interests and international peace.

## A DAY IN DERBY.

DERBY—right pleasant "Darbie," as we re-collect it—is greatly changed. But a few years since there mustered only 10,000 inhabitants. Then the Derwent hurried on its joyous way, sparkling brilliantly; the sun shone on its course, and lambs were seen basking on its green bank; the gardens of the few suburban seats dotting its shores extended to the water's edge, and the wherry—the delight of its healthy freight—was safely moored alongside the apology for a quay. Now, all is changed; a cloud has darkened the sky. The magic wand of "business" has transformed the hitherto rural locality into what the stranger may call "a dirty town begrimed with soot." The clear and limpid waters of the Derwent of former days are now black, blue, and red, from the lofty and numerous manufactories and dyeing houses crowding its banks. Its very course has been interrupted and obstructed by dams and weirs, giving extensive mill power and adding greatly to wealth,—producing, indeed, some very pretty "Niagara falls" in miniature, but wholly destroying navigation,—rendering some places deep, some shallow, some running slowly but surely, some running along with great noise and fantastic shapes, but having no substance, making it truly a shadow forth of the mind and fortune of many busy mortals who are within reach of its waters. Yet, for all this, Derby is a clean town—and a pleasant one to hoot, if we compare it with some of the leviathans. This situation in a great measure helps, being built on rising ground, the lowest portion of which is sufficiently high to prevent the Derwent with loads of golden treasure—to the farmer invaluable, but to its waters destruction. The refuse of between 50,000 and 60,000 who now call Derby their abiding place is surely of greater



value than to be treated as refuse, especially here, where everything is worked into the useful. The farmers, I expect, are not over anxious to adopt Sir Robert's golden maxim—"to grow two blades where one grew before." We must see about us, however, and glance at what is doing here in our own more particular department, and record some of the changes. We fear too much water—not being desirous to claim acquaintance with "Sir Grampus Rheumatism."

First and foremost, then:—There is now a probability of a fitting entrance being formed to the Derby Arboretum,—a new street being made through some nursery grounds (which are laid out for building), from the Osmaston-road and up to the arboretum fence. This opens a direct communication to the Midland station, and was much needed. The committee have purchased a plot of land fronting the street for a lodge, but their funds will not permit of further outlay this summer. It is hoped that this lodge will be worthy the place to which it leads, and that the head and arm to effect this will not be stinted to a few pounds. The new refreshment room and gardener's dwelling are just completed, and will be a great comfort in showery weather. These grounds should be thrown open twice a-week (exclusive of Sunday), gratuitously, instead of only on Wednesday.

The new works to the additions to the "Infirmary" are nearly closed: it now makes a large pile, but the contemplation of it does not fill one with pleasant emotions, although we cannot but rejoice that there is such a refuge for unfortunate suffering humanity: it is supplied with the most skillful surgeons and physicians that Derby can produce, and is said to be altogether well managed.

The new church of St. Paul, Little Chester, Derby, is now completed, the stone boundary wall erected, and the ground laid out with laurel and other evergreens. A writer in a local journal objects to this, and would have substituted some of the decorations of our village churchyards,—thinking it too much of a "nursery ground affair." As the church is very low, the landscape gardener could have attempted less than the present arrangement, unless, little indeed, he had hid the church entirely from view. Perhaps this was what the correspondent wished: if so, he should undoubtedly have spoken earlier, and stopped its erection. The day of consecration is not far distant, though not yet named: we trust the good bishop's olfactory nerves will not sustain a shock from the horrid stench arising from some black ditches, &c., surrounding the edifice, and which have caused many of the workmen to leave during the progress of the building. The "Sanitary Rummager," with his "new broom," is sadly wanted in this locality: everything is against cleanliness: a worse site for a church could not be found. It is hoped they will not increase the insalubrity by the rash interment around it of the departed: this would be "carrying coals to Newcastle" with a vengeance.

A general cemetery is much required at Derby. We cannot comprehend where all who have died in Derby within the last five years can be stowed away. Every grave-yard seems overflowing, and yet they are opening their jaws for more. Truly they must be elastic—a sort of India-rubber affair, which can distend itself monstrously till emptied. The dissenters are wise; they have a cemetery of their own—a clean, wholesome resting-place,—and more than that, they will allow churchmen to be buried there. A new resting-place for the church has been on the tapis for some time, but the scheme is not watered enough to make it bloom, much less to bear fruit. Let us urge it on. The time cometh when no man can work, and it is not with pestilence at the door—that we are to provide receptacles for its victims—at all events suitable receptacles—receptacles which might prevent their pestilential visits from ever occurring. "Up while it is day."

The new diocesan training school for females has been commenced. The site is on the Uttoxeter road, near the dissenting burial place, which it overlooks. It will be a large building,—cost about 7,000*l*. Mr. Stevens is the architect; Mr. G. Thompson the contractor.—Two large school-rooms have been built on ground at the back of Trinity Church,

forming wings to the old school. The new ones are capable of accommodating a large number, and were sadly wanted. Mr. E. Thompson, builder, was both architect and contractor. New schools are just commencing on the Burton-road, in connection with Christ Church: these also were much needed, the present accommodation being very inefficient.

The restoration and enlargement of St. Werburgh's Church, the body of which is classical and the tower Gothic, is to be proceeded with immediately, tenders having been delivered and the builder appointed; Mr. Stevens, architect. A new clock is being fixed in the Tower of St. Alkmund's Church. The utility of this is not very manifest, as there is an excellent chiming and striking clock at All Saints, almost within a stone's cast. Poor St. Michael's Church—between the two above—still drags its slow length along, or rather, is still suffered to combat the wind and hail. The demolition of the building, and the erection of a new church at a distant part of the parish, is much required: this, with the throwing a yard or two of its site into Queen-street, which is very narrow at this point, would be a great improvement.

A large quantity of land, near the station, has been laid out, roads formed, and sewers laid in, for building plots: some are already sold. A large tract of land, in a splendid situation near the railway, has also been prepared for the market, for the erection of villa and other residences; also many acres, in a different portion, are now in the surveyor's hand—to turn out for the market: this is also mainly destined for villas. Together, somewhere near a thousand houses will be provided for. A busy building season is just commencing: the duty off bricks will give spirit: and the brick-yards are, in consequence, in full operation.

Some acres of ground have been purchased by the railway company, half-a-mile from the Derby station, for the purpose of forming an "empty carriage depot," the station, large as it is, being overcrowded. Two large factories are also about being erected near the Abbey-road.

A glance at the Derby Mercury turns our attention at once to "sanitary measures." We find there that "model cottages for the industrious classes," are not abandoned,—for there is a notice in it describing some plans "that have been proposed," to use their own words, "for the purpose of providing for the better accommodation of the inhabitants of the crowded and ill-built courts and alleys of the town. The author, Mr. Wigginton, architect, of Derby, has entered earnestly into the subject, and produced a building which will answer every purpose for which it is intended." Then follows a description of the building which is to contain distinct dwellings for forty-two families, is to be of three stories, of the external gallery system, perfectly fire proof (Dr. Fox's patent), and to have every essential comfort. The Mercury continues:—"Knowing the necessity of sanitary reform, we trust that Mr. Wigginton's efforts may be crowned with success. The support already given by influential parties augurs well." It is well indeed to have some earnest champion among the provincial press. Let us hope that the Mercury will not cease its outpourings until complete sanitary reform is effected. Neither let individuals cease their exertions. "Many littles make a muckle."

The water company, an essential portion of sanitary measures, is expected to be in active operation by the fall of the leaf, the works having to be completed by July. This will be a great boon, especially if the constant supply system be adopted. If this be not intended, let the company pause before putting the town to an expense of cisterns, &c., thereby nullifying the advantages to the poor, those who need water—*purge* to most.

*Apropos* of sanitary measures—the Corporation of Derby have recommended the removal of slaughter-houses, and their pestiferous abominations, to the "Holmes," a large vacant space wholly surrounded by the terminus and the canal, and of easy access to the cattle market. The only use to which this large field is put at present is for cricket ground, a finer site for which is readily found elsewhere. The corporation authorized a new bridge to be made, but will not go to any extra expense at present.

This is, however, a good step, and is a sign of progression, and that sight is always welcome, being the forerunner of more grand and vigorous steps in future.

Baths and washhouses are about being erected: this step has been mooted for some time, and is sadly wanted; also some lodging-houses for the low part and for the poorer travellers. These have the support of the mayor, who is warmly interested in the sanitary state of the town, and very anxious to urge on the sanitary movement in any way. May he have the support needed, then his mayoralty will be blest to thousands. But our day is just finished, the last train has whistled.

#### RAILWAY JOTTINGS.

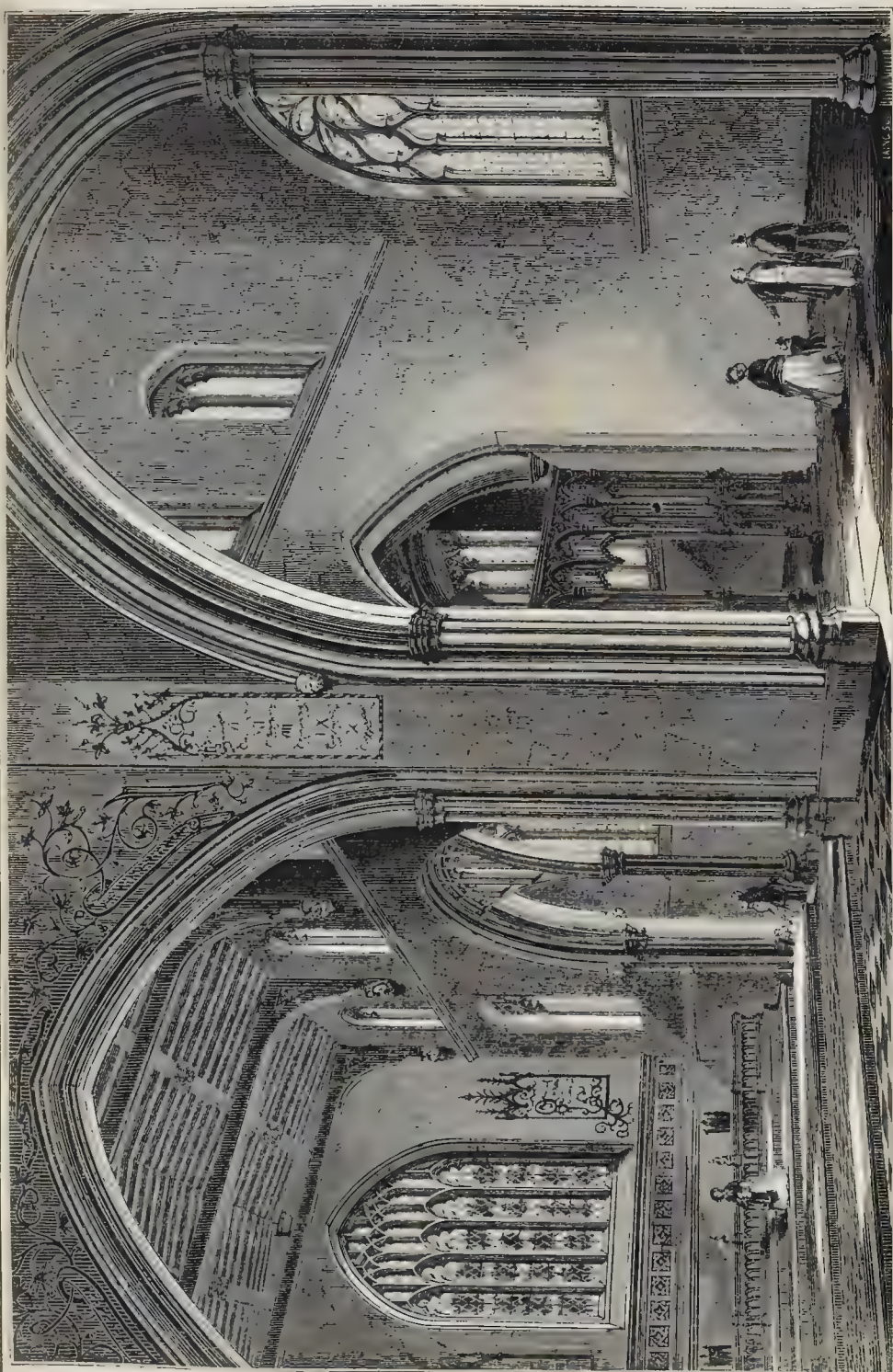
THE works of the Great Northern line from London to Peterborough, to be opened in July next, are in a state of forwardness: they are partly prepared for the reception of four ways. The bridges, embankments, &c., forming the heavy part of the works, are mostly in this state. The whole of the land to Peterborough is purchased for four ways. The North Mimms tunnel, the longest on the line, is bricked through from end to end, and partly ballasted. All the other tunnels on Mr. Brassey's contract, except one, are not far from completion.

The American Miner's Journal complains that five explosions of locomotive engines have occurred in the States in one year, and recommends, among other preventive measures, that every engine driver be provided with or obliged to purchase some standard publication on the duties of his employment. Those companies, it remarks, who furnish their engine drivers with suitable books and other means of information are amply repaid in the greater skill and more faithful performance of duty in those thus supplied with the means of knowledge. Explosions of steamship and locomotive boilers are certainly alarmingly frequent in America, but in congratulating ourselves on our comparative exemption, let us not forget that of late—indeed within not many months—there have been no less than three explosions of locomotive boilers, besides not a few explosions of other steam boilers, in this country also.—Cheap railway excursionists are now on the *qui vive* for the coming summer season.

Amongst excursions already projected is one to Paris and back, in which third-class passengers are tempted with a prospect of all the sights of the grand metropolis of fashionable revolutions—in politesse as in politics, in gentlemanly habiliments as in social frame-work,—and besides all else, with a view of Waterloo and other notables to boot, the whole to be seen at the certainly low charge of thirty-seven shillings and sixpence—less than last year's cheap excursion merely to our own northern metropolis. Another excursion from Birmingham to Exeter, at a half-penny-a-mile has been announced, and one from Bristol to Birmingham—131 miles for 7*s*.—A somewhat singular trial is about to take place between Government and the railway interest. The moving parties are the Railway Commissioners and the London and North-Western Company. The Commissioners contend for the right, by statute, of sending troops by rail at the regulated price of 1*d*. a-mile, by express trains. The Company deny this right, on the ground that such an interpretation of the act is unjust, and contrary to the spirit of the clause, and would destroy express trains altogether.—Dr. Lardner estimates that a railway train, going at the rate of 75 miles an hour, has a velocity of one-fourth that of a cannon-ball; and that the momentum of such a mass moving at such a speed is equivalent to the aggregate force of a number of cannon-balls equal to one-fourth of its own weight.

COATING FOR CAST-IRON.—Mr. W. Wyatt, of Oldswinford, has patented a glaze,—three parts, by weight, of white-lead, or one part red, or two white, to two borax, and one calcined flint, to be fused, run into water, and ground in a glaze mill to the consistency of cream. The article coated, is to be placed in a kiln—no part of the glaze furnaces exposed to flame or sulphur—and heated till the glaze melts.





INTERIOR OF WARE CHURCH, HERTS, RESTORED.—MR. GODWIN, ARCHT.



## FONT AND NEW CANOPY, WARE CHURCH.



## INTERIOR OF WARE CHURCH, HERTS.

In former numbers of our journal, we gave a view of the exterior of Ware Church, then recently restored by the parishioners at a considerable cost, and a description of the building and of the works done.\* We now add, at the request of some correspondents, a view of part of the interior, and the font with its new oak canopy. The font is very curious, and was given to the church in the time of Henry IV. The eight panels, as we have elsewhere mentioned, contain representations of St. Gabriel, the Virgin, St. John Baptist, St. Thomas, St. Catherine, St. George, St. Christopher, and St. Margaret.

The view of the interior is made looking south-east, and shows the chancel, Lady Chapel,

and south transept. The screen separating the two latter is of oak; the clustered column in the opening between the chancel and the chapel is of Purbeck marble, polished. The altar-rail is of oak, with kneeling figures on the gateposts. The large window in south transept was put in some years ago. The roof of the nave (not seen) is much better than that of the chancel.

**LONDON CITY IMPROVEMENTS.**—The measure for opening a new street crossing from Queen-street by Bow-lane, Bread-street, Friday-street, Distaff-lane, and Old Change, to St. Paul's Churchyard, and for improving Gresham-street West, and Threadneedle-street, has been opened in committee. The money (200,000*l.*) is to be raised on the city revenues and estates.

## UNITY FOR PROGRESS IN ARCHITECTURE

THE subject of Progress in Architecture, and Copyism, mooted in your pages of late, appears one of the most important we have had before us for some time past. Not that it is a new one with you, but that the controversy is becoming closer and assuming a more practical tendency than it has hitherto done.

A communication I made to you in July, 1846,\* bearing on this subject, contains views which, with some modifications, still appear to be right. Certain it is, that such as have returned to old paths have taken a *decided* course in search of truth, have learnt the elements of their art, and are, perhaps, as a body, in unity with itself, nearer to the development of a new style than those imagine who are yet separated and undecided what is truth and where it is to be found. A word of Scripture, with all reverence spoken, seems exquisitely appropriate to the state in which architecture has been and is—"That which thou sowest is not quickened, except it die; and that which thou sowest, thou sowest not that body which shall be;" 1 Cor. xv. 36, 37; and thus I use the word *development*, as a plant breaks the ground and unfolds its lovely flower, and even in death beareth seed for other varieties of the same species. Spontaneous generation, unknown in nature, is no more so in art, if our studies and theories of the past be true: all witness, that architecture continued to proceed from and to grow out of itself; beauties unfolded *themselves* to the mind of man as a reward for his study and actual labour, and his hand was moved as by a spirit to fashion out the same according to the pattern thus manifested unto him: man owes all to the living principles revealed in architecture during the time of his *industrious labour* upon it: architecture owes to man his beautiful handiwork.

Practically, is it not union we want? else how is it that all mediæval work of the same age bears so much the same image. There is the Institute and many architectural societies in correspondence with each other, and with the foreign institutes, and yet there are but few common guiding principles among us in design.

T. M. W.

## COLUMNS AS MONUMENTS.

MONUMENT TO EBENEZER ELLIOTT.

At a meeting held in Sheffield a few days ago, to determine on the erection of a monument to Ebenezer Elliott, enough was said to lead to the belief that the opinion of those who were arranging the matter was in favour of a *column* for that purpose. A correspondent writes us as follows, and we fully agree with him in the objection to the form in question, and have long ago expressed it. He says,—In erecting insulated columns as monuments to departed worth, we have blundered in the wake of the Romans, who took the idea from the appropriate cenotaphal structures of the Egyptians—obelisks. The obelisk is expressive of its purposes: its form and associations alike palpably indicate the object of its erection: it stands forth a monolith, *complete* in itself, to record a people's gratitude, or to proclaim some deed accomplished—some fact. Not so the column: it is like an adjective, or a note of admiration—alone it has no meaning. Shorn of architrave, frieze, and cornice, it is necessarily suggests the complement of its "order:" a superincumbent entablature is as essential to its completeness as is a base or capital. Its proportion as to height alone recommends it. Apart from a building, wrested from its proper position as a prop or support, it is but as a leg without a body—a disjointed limb. What is characteristic in it, considered as a member of an architectural composition—as *part* of an order, ceases to have propriety or meaning, when it is converted into an independent object. Then, the absurdity of placing a figure on the top, making it appear indifferent to its position in the clouds, at a height sufficient to make the brain of an ordinary mortal reel,—exposing it, too, to the genial influence of this delightful climate of ours,—subjecting it to colds, and influenzas, and rheumatism. Really, we ought to be guided by common sense in these matters: high

\* See Vol. V., p. 615, and Vol. VII., p. 426.

See vol. iv., p. 257.



authority ought not to reconcile us to puerile conceits. Columns were at one time used as chimney shafts, but we have outgrown such barbarous classicism: the sooner we outgrow our pedantic taste for column-monuments, too, the better. Architects cannot be troubled with such poverty of invention as not to be able to devise some more appropriate form than that of the column to meet our present requirements.

#### SAFETY IN SOMERSET HOUSE.

Good Mr. Editor, I am a perturbed spirit seeking to be laid,—in truth, a spirit without spirits, for I have lost them all. Ever since the 1st of this May I have wandered dolefully about my great work, Somerset House (and I will call it great, for there has been nothing better done since), groaning under the scandal of the University of London, who on that day set forth in print that “the surveyors of Woods and Forests had expressed some doubts as to the safety of the large room of the School of Design,” my large room, and therefore that they would hold their meeting elsewhere. I have visited the bed-side of the Inauro, or In-man at the office of Woods, (they call him surveyor-general, but I don’t hear many of his commands), and he said he had never expressed any doubts at all, simply because he never had any. Another of the surveyors said the room was usually full enough on Friday nights to listen to the lectures, and he did not see why the drawing students’ lives should be thought less of than those of “candidates for degrees.” A few nights ago, however, as I sat despondingly on one of the posts (and young Acreman nearly knocked me off by “overing” it, as he went home to his rooms above the Antiquaries’), I heard two grave little men say something to each other about the expense of fitting up the great room having been the cause of the adjournment. Now, if this be correct, it is really too bad to bring such undeserved disgrace on poor me as a constructor; and I do hope you will endeavour to get at the truth, and so render peaceful once more the now unquiet

SHADE OF CHAMBERS.

The Dark Arches.

#### REGENT’S-PARK AND PRIMROSE-HILL.

A RING of houses now nearly encircles this picturesque prado, which certainly is the favourite resort of the working classes. Any who would condescend to visit Primrose-hill on Sunday might see several thousand artisans and their families inhaling the breeze and enjoying the hill and woodland scenery, now looking jocund in blooming thorn. There is but one open spot as yet uncovered by brick and mortar, and that intervenes between the two parks, just at the chain bridge;—the only aperture which reveals, through a beautiful vista, on one side the green hills, waving together, on the other the sylvan Regent. The interposing field (of about two acres) is now to be let for building, and as it commands both parks, doubtless will soon be taken, and then a bastion of houses will effectually cut off this charming solace of seeming rural repose,—the only one short of Richmond-park available to the toil-worn room-keeper.

Regent’s-park contains (or did so originally) 500 acres, Primrose-hill about 100, and yet these two public domains are, it seems, to be spoiled, because the Woods and Forests will not purchase the two acres. Now this small enclosure may be had for a fair valuation; and I happen to know that his grace the Duke of Portland would not object to give it in perpetuity to the Crown for the use of the public and the improvement of his estate; and yet the commissioners who have been often solicited to purchase it will not entertain the proposition. Lord Morpeth agreed in the expediency of the acquirement, but thought that “it would be inexpedient to incur the cost.” The liberality of officials in disposing of nearly 100 acres of Regent’s-park (within 12 years) to increase the pleasure-grounds of the five mansions within the enclosure, and of one non-official favourite without the enclosure, who got a slice of eight acres, with the right to a bridge across the canal (and this to the exclusion of the public),

—this liberality will stand awkwardly in apposition with the sudden spirit of discreet economy, which forbids the outlay of 3,000*l.* or 4,000*l.* to save the injury of all! The application of private persons to high authority has been ineffectual on the above subject, and not even a reply has been given to a late respectful application; therefore the advocacy of THE BUILDER, of the distinguished in art who correspond with that paper, and of every friend of the working classes, is sought in this behalf by

QUONDAM.

#### ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AN ordinary meeting was held on Monday, the 22nd April, Mr. S. Smirke, V.P., in the chair, when Mr. Henry Thomas Hope, M.P., was elected Honorary Fellow; Mr. W. R. Harrison, Fellow; Mr. A. R. Dobson, Associate; and Dr. Layard; Herr Busse, Berlin; Mons. Delsoux, Liege; Mons. Fries, Strasbourg; Herr Gaj, Warsaw; Professor Gutschmid, Leipzig; Christian Hansen (Dane), of Athens; Herr Kranner, Prague; Herr Metzger, Munich; the Signor Japelli, Padua; and li Conte Selvatico, Venice, were elected Honorary Members.

A description of the damming and the construction of the piers of a bridge on the railway from Amsterdam to Rotterdam, by Mynheer Conrad, C.E., communicated by Mynheer Weenick, was read; after which Dr. Granville communicated to the meeting the particulars of the railway proposed to be constructed on Mount Cenis, and described the mode in which it is intended to excavate the tunnel, seven miles in length, from Modane to Bardonecche. We shall probably give the details.

At the annual general meeting, held May 6th, the following were elected officers for the ensuing year:—

President.—Earl de Grey.

Vice-Presidents.—Messrs. A. Salvin, C. R. Cockerell, and C. Fowler.

Honorary Secretaries.—Messrs. J. J. Scoles, and C. C. Nelson.

Ordinary Members of Council.—Messrs. C. Mayhew, D. Mocatta, C. Parker, T. H. Wyatt, G. Bailey, B. Ferrey, H. Garling, H. E. Kendall, jun., G. G. Scott, and Sauton Wood.

#### THE SKY LINE OF LONDON HOUSES.

ARCHITECTURE has been defined to be “the art of building something useful in a beautiful form;” and the definition, in whatever else it may be defective, has the merit of setting prominently forth the main requisite of the art—the combination, namely, of beauty with utility. Judging from our national character, we English should be strong at least upon the utilitarian side of the subject, and I am inclined to believe that the defect which makes really good architecture so rare a thing amongst us, lies altogether on the other side. I mean, in our feeble perception of the “beautiful.” It is to the respectable, rather than the beautiful, that an Englishman is at all times most sensitive. It is a sense of the respectable by which he regulates house, furniture, and dress,—saddens the colour of the latter down to mere blackness,—tolerates that inverted saucypan the modern hat,—and would put up, I feel satisfied, with any amount of ugliness you chose, provided always that it came sanctioned by the approval of that class of English society, from whose manners and doings he alone draws his criterion of respectability.

An instance of this conventional toleration of deformity forms the subject of my present complaint. Why, I would ask, while we are careful to give to the front and sides of our houses a line of architectural symmetry, should we so generally neglect their tops, and suffer that important line which is formed by the roof and chimneys against the sky, to be broken up and defaced by all kinds of mere rubbish and confusion? Why should huge zinc pipes, sticking bolt upright in the air, or twisting into every variety of ugly contortion, be suffered to sprout out from our chimneys, and rise all over our roofs, like a crop of gigantic fungi? Can it be contended, upon any principle of taste, that the sky line is not

of just as much importance to the general effect of a building as any other? In bright weather it is at least as conspicuous as the rest, and in gloomy days (of which we have somewhere like twenty to one of sunshine in this climate), when the rest of the architecture has little relief, this line, telling dark and cutting against the sky, becomes the most prominent of all, and by its good or bad effect decides the general aspect of the edifice.

I am aware that many examples exist in and about the metropolis in which this line appears to have been duly considered, and the chimneys, instead of looking like mere afterthoughts, have been brought into some agreement with the general design. But what avails it? No sooner has the architect completed his work, and the house become inhabited, than the bricklayer and chimney-pot-man are sure to be sent for to give a few crowning touches to the work, and render it as pitiable and ridiculous in effect as any caricaturist of modern architecture could desire, and give us another specimen of the case of poor Mr. Briggs, whose house, as portrayed in a former number of *Punch*, with its roof very profusely decorated with these delectable contrivances, may serve as an excellent example of their general effect.

But perhaps it will be said, who can help it? If architects, with all the scientific resources of the present age, cannot build a chimney that will carry smoke, houses must be rendered habitable, at whatever expense to their outward appearance, by these or any other means that can be devised. An objection which just brings us to the question I wish to state, namely, are there no other means of effecting the same object? These contrivances either cure the chimneys, or they do not: if not, then there is the less reason to tolerate them, and if they do, surely our architects are competent to understand the principles upon which they act, and apply the same under forms a little less revolting to all good taste.

AN ARTIST.

#### WATER PRESSURE AS MOTIVE POWER. INSTITUTION OF CIVIL ENGINEERS.

On the 7th, Mr. William Cubitt, President, in the chair, the paper read was “On the application of water pressure, as a motive power, for working cranes and other kinds of machinery,” by Mr. W. G. Armstrong. The object of the paper was to direct attention to the advantages of a more extended application of hydraulic pressure as a motive power, and to point out the means of attaining this desirable end, illustrating the arguments by descriptions and drawings of the engines on this principle already erected, since the year 1845, when the author first designed a crane, to be worked by the pressure of water from the street water pipes, at Newcastle-upon-Tyne.

The principle of these engines, as applied to cranes, was described to be very simple. In order to lift a weight, the water, under a pressure of about 100 feet head, or more, being admitted through a slide valve into a cylinder, exerted a force on a piston, whose rod was connected with the hoisting chain, so arranged by passing over several pulleys, as to increase its length of travel to the requisite duty to be performed; the piston receding from the pressure therefore raised the weight to the height required. The lowering of the weight was accomplished by a reverse action, and the crane was turned in either direction by a similar action of a smaller cylinder, whose piston rod was connected with a rack, working into a circle of teeth, fixed to the base of the moveable frame of the crane.

A water-pressure engine, it was said, had been lately very successfully applied by the author, in South Hetton Colliery, for the traction of wagons upon an underground railway. Similar engines had also been erected in the lead mines, at Allenhead, for lifting ore, and other purposes. Reservoirs were there formed upon the neighbouring hills, and pipes were carried into the mines to supply the engines, the expended water flowing out by a level.

THE MEMBERS OF THE ARCHITECTURAL ASSOCIATION dined together on the 7th.



## THE NORTH LONDON SCHOOL OF DRAWING.

We have seen with great pleasure a letter from the hon. Colonel Phipps, in reply to a communication soliciting Prince Albert's patronage of the suburban artisan schools of drawing. Colonel Phipps says:—"I have, by his Royal Highness's commands, made some inquiry into the working of these schools, and his Royal Highness was much pleased to hear that the attendance at them has already become larger than was expected at the time you wrote your letter. His Royal Highness being convinced that such instruction will be highly beneficial to the artisans, has commanded me to state that he willingly grants his patronage to this artisan art school; and I am further directed to enclose to you the accompanying cheque for 25*l.*, as a donation from the Prince to the funds for its support."

## EARL DE GREY'S CONVERSAZIONE TO ARCHITECTS.

EARL DE GREY opened his house to the members of the Institute of Architects on Friday evening, the 3rd inst., and invited, as heretofore, a large number of the nobility, their ladies, and men of science, to meet them. Many good sketches covered the tables, and the fine rooms of his lordship's mansion were crowded for some hours by a changing flow of visitors. We contemplated printing the names of all who were present, but find the list would occupy more space than we can spare. The Council of the Institute were about to issue cards for a conversazione in Grosvenor-street, but this was of course superseded by Earl de Grey's well-timed invitation.

On Monday Earl de Grey will preside at the meeting of the Institute, and the royal medal will be presented to Mr. Barry.

## LORD LONDESBOROUGH'S CONVERSAZIONE.

On Wednesday, 8th, Lord Londesborough entertained, with very elegant hospitality, at his residence in Piccadilly, a large number of gentlemen, eminent in the literary, artistic, and scientific world. An exceedingly fine collection of works of art and antiquity were gathered together for the occasion, with an illustrated index as a memento for visitors, and ladies were not wanting to add to the agreeableness of the meeting.

Previously to the *conversazione*, Lord Londesborough received at dinner Professor Brand, Professor Wheatstone, Mr. Roberts, R.A., Mr. Maclise, R.A., Mr. Jerdan, Mr. Planché, Mr. John Forster, Mr. J. O. Halliwell, Mr. T. Wright, Sir Edward Belcher, Mr. Fairholt, Mr. Roach Smith, Mr. Arden, Rev. Mr. Barlow, Mr. Godwin, and others. We mention this pleasant first step on the part of Lord Londesborough as one worthy of imitation by others of the same station.

## NOTES IN THE PROVINCES.

ANOTHER strike has taken place amongst the nailmakers throughout the Dudley district, in consequence of an attempt, on the part of some of the masters, to reduce wages 10 per cent. Many thousands are idle, and the district is in a very disturbed state, although no complaints have hitherto been made of the men's conduct.—It is intended to fill the five lights of the Ladye Chapel, in Hereford Cathedral, with painted glass, according to the local *Times*, as a testimonial to the late Dean of Hereford.—It is proposed to erect three large school-rooms, and two houses for teachers, for poor children in the district of St. John, Durham Down, Bristol: about 400*l.* are still wanted, about as much having been already subscribed, besides at least as much more expected from the National Society, the Council on Education, and a Diocesan fund.—About 3,000*l.* have now been subscribed, in 25*l.* shares, for the erection of a town-hall at Merthyr large enough to hold the quarter sessions.—Large sums, amounting to about 14,000*l.*, have been promised for the erection of a sort of monastic institution for women of the Church of England, under Miss Sellon, at Devonport, to cost 18,000*l.*, and to comprise accommodation for thirty "sisters," and for a number of orphans,

with an infirmary, school-rooms, &c. A site, it is said, has been purchased.—The salt water baths on St. George's pier-head at Liverpool have been purchased by the Corporation, and are to be converted to public use at low rates of charge, in addition to those already in operation. During the last year, says the *Albion*, the attendance at the baths in Paul-street has almost doubled. Last week no fewer than 1,443 attended, the receipts being 18*l.* 4*s.* 7*d.*: the attendance same week last year was 772; receipts, 10*l.* 17*s.* 5*d.* In Paul-street, a hot bath may be had for 2*d.*, and these are in most request. The new baths in Cornwallis-street are being rapidly proceeded with. Mr. Newlands has visited Nottingham to see the interior decorations of the baths and wash-houses in that borough, with a view of adopting some of the improvements introduced there. The Cornwallis-street baths and wash-houses are expected to be completed in September.—St. Ann-square, Manchester, according to the local *Spectator*, is about to be improved at the corner nearest the Exchange, by the erection of a new structure for shop and offices, from designs by Mr. Gregan, architect. The two front walls will be rounded off into one, so as to open up a view of the Exchange portico, and widen the thoroughfare.—A Mechanic's Institute is to be erected at Ashton: the Earl of Stamford and Warrington has promised a site, and subscriptions (one for 100*l.* from Mr. W. C. Hindley), will be forthcoming.

In aid of an Athenæum at Bury, Sir R. Peel has subscribed 100*l.*—St. Andrew's Church, Bywell, says the *Gateshead Observer*, has been re-opened, after undergoing certain repairs and restorations.—The principal castings of the Wellington Statue at Edinburgh, by Mr. Steell, are now being taken at a foundry erected for the purpose.—A cenotaph is about to be erected at Fullarton, Ayrshire, on the property of the Duke of Portland, to the memory of the late Lord George Bentinck.—St. Michael's church, Milverton, was re-opened on Wednesday in last week. It has undergone an extensive restoration under the direction of Mr. Hayward, of Exeter. The piers of the south aisle and of the chancel arch, which were out of the perpendicular, have been rebuilt in Bath stone. The exterior as well as interior has been generally restored. The total cost, when complete, will be about 3,000*l.*, mostly raised in voluntary contributions.—A new church, erected at the cost of Mr. Sidney Herbert, has been opened at Sandymount, one of the marine suburbs of Dublin.

## BOOKS.

*Westminster: Memorials of the City, St. Peter's College, the Parish Churches, Palaces, Streets, and Worthies.* By the Rev. M. E. C. WALCOTT, M.A., of Exeter College, Oxford, curate of St. Margaret's, Westminster, and author of the history of that church. Masters, 78, New Bond-street.

WESTMINSTER is historic ground, England's classic centre indeed, within whose consecrated limits is concentrated an immense amount of historical and archaeological interest, so that it would be scarcely possible, we should think, with average diligence and research, to prepare any popular work on its ancient memorials that would not repay the effort to peruse it. Much more, then, may such a work team with popular as well as special antiquarian interest, when compiled with all the advantages of learning and judgment evidently possessed by the present author, who, besides, occupies a position which not only enables him to reach resources not available to every one, but to enhance the attractions of judicious selection and curious research by all the inducements of a labour of love. It is a singular fact, however, that such a work on so distinguished a subject was still awaiting in an age of popular awakening like the present: nevertheless, such is the fact; but Mr. Walcott's endeavour to supply the desideratum appears to be a successful one, although the interest of his pages is by no means exclusively popular, albeit they do not constitute such an inexhaustible quarry of antiquarian lore as alone would satiate some lovers of ancient relics. To remind our readers in general of what they may expect to interest and amuse

them in such a volume, it is really unnecessary, unless for form's sake, even to name such places as St. Stephen's, the Abbey, the Star Chamber, Old Palace Yard, New Palace Yard, the Sanctuary, Privy Gardens, Whitehall, Holbein's Gate,—or the antecedents of Downing-street, and other sites of modern classic interest. Our present object is merely to draw the attention of our readers to a book that will interest them, though our space and time prevent us at this moment from extending our notice into an article itself of interest, based on Mr. Walcott's researches, and which they will so readily yield.

## MISCELLANEA.

METROPOLITAN SEWERS COMMISSION.—At the last monthly meeting, Lord Ebrington in the chair, the court was crowded with parties summoned for refusing to construct drains and remove nuisances. It seemed to be unknown whether owners or tenants were liable; but the court stated that they possessed the power to summon either owner or occupier, and that they intended in future to do all the necessary works themselves if their orders were not attended to, charging those summoned, and leaving landlords and tenants to settle as to who was ultimately to bear the burden. Mr. Foster then reported his views as to the drainage of the town of Richmond, with reference to the investigations of Mr. Donaldson and Mr. Bazellegette. A system of pipe drainage, at a cost of 7,850*l.*, was recommended by Mr. Foster, to run into the Thames at the railway bridge immediately below Richmond, through a drain running along the railway. If, however, it were thought expedient to experiment on the application of the sewage to agricultural purposes, the main pipe drain might be extended across the railway into Richmond old park, where the sewage might be collected and applied to the surrounding ground. Of an ultimate system or general scheme for the drainage of the towns on the south bank of the Thames to some point below London, the scheme now recommended might afterwards form a portion. Leave was then given to the Sewage Manure Company to construct drains so as to draw off a portion of the sewage of Fulham-road and Chelsea. Leave was also given to the surveyor of the eastern district to connect certain sewers in Broadwall with the chimney of Messrs. Davey and Co.'s coke ovens in Old Barge-house-street, for the purpose of ventilating the sewers.—The difficulty with which applicants for leave to build sewers get replies is much complained of.

OLD BRICKS.—Notwithstanding the cessation of the duty on bricks, there appears to be a good demand for old ones in the neighbourhood of Witham; for, according to the *Chelmsford Chronicle*, about 10,000, sold by auction on Monday last, at Witham-place, realized from 18*s.* to 21*s.* per thousand.

TOTTENHAM SURVEYORSHIP.—You are so bold an advocate for the dignity of our profession that I feel no apology necessary for intruding upon you on this occasion. The advertisement for this appointment requires gentlemen to be competent to *scheme, lay out, and carry into execution the whole of the drainage of the town, with the disposal of the sewage matter and the provision of the water supply*, three of the most important matters now occupying public attention, and certainly most essential to the public health: the remuneration offered is 120*l.* per annum. Now, if the worthies of Tottenham be at all up to their work, they will know, that to accomplish all they require, and to do their duty effectually, the services of an engineer practically acquainted with such matters must be secured,—one who has well informed himself upon these subjects, and who is thoroughly acquainted with sanitary movements and improvements of the day. Short of this, they had better do the job in the ancient "churchwarden style," and secure it to some favoured youth well supported by parish influence, and not appeal to the profession, in which I trust there is none—"no, not one"—who will accept their shabby offer for so important an office. The profession and the public are, I conceive, alike interested in this matter.

AN OLD SUBSCRIBER.



**LAYING CHIEF STONES.**—On 24th ult., the first stone of an asylum for decayed merchants of London, to be called Stansted College, was laid at Rowland Castle, by Mr. Dixon, of Stansted, at whose cost the edifice, which is to be in the Elizabethan style, and to cost 5,000*l.*, is to be built and supported. —The foundation stone of St. Edmund's Church, Northampton, was to be laid on Monday last. —At Moxley, Wednesbury, on Friday in last week, the foundation stone of a new district church was laid by Lady Emily Foley. —Mr. Myers, the builder of the monastery to be erected at Rugby, is already having the foundations dug out. The work it is said will last two years; this building being designed to be on a very extensive scale. —The foundation stone of a new Catholic church is to be laid at Hartlepool in course of this present month. —On Wednesday week, the foundation stone of a new Catholic chapel and school room was laid at Upton-on-Severn, when high mass was performed. The stone contained a coin of the Pope's, beside those of the sovereign of the realm. —The first stone of a new church at Blendworth, in Hampshire, was laid by Lady Knighton on the 20th of last month. It is in the Decorated style, with nave, chancel, and south aisle, with a tower occupying the east end of the aisle, which will form an object from the roads which meet in front of it, and from the sea at a little distance. The material is stone and flint, and the whole is to be carried out consistently with church architecture, with stone piers, arches, jambs, &c. The seats to be open. Messrs. W. J. and E. Habershon are the architects.

**LIVERPOOL ARCHITECTURAL SOCIETY.**—At a meeting, on Wednesday evening, a letter was read from Mr. H. P. Horner, requesting the architects of the town gratuitously to assist in making a model of the docks of the port for the Great Industrial Exhibition. The model would be on the scale of 8 feet to the mile, and architects would facilitate the work by sketching, colouring, and afterwards transferring to the model, blocks of particular buildings. These would be pasted on the wood and cut out afterwards by paid assistants. Mr. Reed, the secretary, then read the report for the past year, enumerating the papers which had been read, and stated that the increase of associate and student members during the session was very gratifying. It was announced that Chester had been fixed upon as the place to be visited in the society's annual excursion this summer. Mr. Picton was chosen president for next year, and Messrs. Charles Barber and Arthur Holme, vice-presidents.

**BRITISH ARCHAEOLOGICAL ASSOCIATION.**—At the meeting on April 24th, 1850, Mr. J. Heywood, M.P., in the chair, after numerous interesting exhibitions, papers were read from Rev. Mr. Massey, of Chester, on a pavement of encaustic tiles found during excavations in that city, also some further information respecting the supposed Roman sewers there; by Mr. Planché, on the origin of certain armorial charges, in which he showed that interesting historical and genealogical facts may be substituted for the wild legends and absurd reasons invented to account for their assumption. The meeting terminated by the reading of a paper, by Mr. L. Jewett, on extensive Roman remains found at Headington, near Oxford. The buildings are protected on one side by a rampart and ditch, and several Roman roads are to be found in this district. The annual congress will be held at Manchester and Lancaster in the beginning of August next, under particularly favourable circumstances.

**THE NAIL TRADE.**—As already noted, several nail masters in Dudley and the neighbourhood have given notice of a drop of 10 per cent. in the wages of their workmen. The cause assigned for the proposed reduction is the difficulty which the masters experience in competing with those manufacturers who pay their workmen in truck, and who are thus enabled to undersell the fair dealer. It would be much more rational and just if these masters, instead of lowering their workmen to the level of the truck manufacturers, would unite with those who are now engaged in suppressing a system so destructive of all fair and honourable competition, and injurious to the interests of the workmen.

**PROJECTED WORKS.**—Advertisements have been issued for tenders, by 18th inst., for building a warehouse at the Isle of Dogs, —Mr. Moon, of No. 1, Millman-street, Bedford-row, architect; by 28th, for the enlargement of a chapel at Stockwell-green, Surrey, —Mr. James Wilson, 16, Bridge-street, Westminster, architect; by 27th, for the erection of a pauper lunatic asylum for Hampshire, —Mr. Harris, of Hanwell, Middlesex, architect; by 21st, for works in making a drain with branch drains, &c., in the Royal Arsenal at Woolwich, —by 30th, for works in refloating water wheel and repairing wharf at Waltham Abbey and Enfield, —and by 30th, for the erection of works and buildings at Gros-Nez, Alderney, —all for the Ordnance, as advertised; by 1st June, for supplying and fixing gas fittings for the new borough prisons at Devonport, as advertised; by 3rd, for the erection of booking offices, waiting rooms, engine shed, roof walls, platform, and other works, at the London-bridge new station of the Brighton and South Coast Railway, —Mr. R. J. Hood, engineer to the Company; by 24th inst., for the erection of school rooms, master's house, and premises, at Spitalfields, —Mr. J. Harrison, of 34, Moorgate-street, architect; by 29th, for the erection of a warehouse near Tredgar, Monmouthshire, Mr. D. J. Humphris, of Cheltenham, architect; by 15th, for a supply of British iron for the East-India Company; by 15th, for the remanufacture of 2,500 tons of old iron rails, or supply of new, for the York and North Midland Railway, at York, —Mr. T. Cabry, of York, engineer; by 18th, for the erection of a toll house at Wicham, for the Fen office, Ely; by 11th, for the erection of a new aisle to the parish church of Roade, —Mr. E. F. Law, of Northampton, architect; and by 18th, for restoring the chancel of Chelveston Church, near Higham Ferrers, same architect.

**PAINTED OBITUARY WINDOW.**—A stained glass window has been erected at the east end of the south aisle of Worcester Cathedral, as an obituary memorial of the deceased lady of the Rev. Allen Wheeler, precentor of the cathedral. The old Perpendicular tracery of the window has been removed, and the window itself is now restored to its original form, namely, a triple lancet light. The design of the glass consists of a figure, nearly life size, and canopy, in each compartment; the centre one presents our Saviour, and the side lights the Virgin Mary and St. John the Baptist. The glass was designed and executed by Mr. George Rogers, of Worcester.

**A SELF-ACTING SAW MILL.**—The *St. Louis Republican* gives an account of a saw mill, constructed on a new and singular principle. The inventor is Mr. Amos Jackson, of Portowatamie county, Iowa. The mill derives its power from the weight of the log to be sawed. The ways on which the carriage travels are fixed on bearings that enter into the frame: the opposite ends are provided with large segments of a cog-wheel working into a series of cog-wheels and pinions: thus when the log is pushed forward to the saw, its weight is brought to act with great force through the segments on a shaft having several intermediate gearings to increase the speed sufficiently for driving the crank shaft. The weight of saw logs being commonly six to eight thousand pounds, we may judge of the immense propelling power thus obtained: indeed the fear is that means will have to be used to check and regulate the velocity of the descending mass as the segment describes its arc. The toothed edge of Mr. Jackson's saw is made thick, and diminishes to the back, thus leaving all friction out of the question, and saving setting. The price of these mills will be light compared with others, and they can be attached to wheels for travelling through the country.

**"DESIGNS FOR COUNTRY CHURCHES."**—Under this title, Mr. Truefitt is preparing for publication twenty perspective views of designs for small and inexpensive churches. Such of the designs as we have seen promise very well. The work will appear in June.

**GEORGE THE THIRD'S STATUE, CHARING CROSS.**—Dear Editor, —Pray try your influence with the authorities to get the four lamp posts removed which mob poor old George III. at Cockspur-street, and if they would put two feet more of pedestal under him, he would rise with advantage. O. M.

**MOUNTAIN FARM HOUSES.**—"The flooring of some farm-houses we have entered has been composed of naked shelving rock; the deep-set windows often consisting of only a single pane; the chimneys corners very roomy suited for the winter's night, with peat fires on the hearth; and the chimneys tapering towards the top so as to exclude as far as possible the howling wind and driving mist; the walls formed of huge blocks of stone, with the interstices closely stopped with mortar, and the humblest cottages with moss. But many houses and cottages are built of 'cobb' or argillaceous soil laid with rushes or straw. Flummary (*Hyssopus*), oat cakes (*bara ceirich*) and buttermilk, form the chief food of these frugal people, whose average longevity is great thanks to simple diet and pure air." —*Cliffe's Book of North Wales.*

**HOW AXES ARE MADE.**—The process has been greatly simplified within the last two years. The iron is rolled out into bars of proper width and thickness of an axe, and 6, 8, and 10 feet long: it is heated and cut off by a large pair of shears propelled by water power: another workman picks up the piece and places it between a die and punch, and the punch comes down and forces the hole for the handle by punching out a piece. An iron mandril is then inserted into the hole, and it is immediately put under another press, which forms one side of the axe; it then goes into another die, and forms the other side, and is then placed in an upright position, and a chisel comes down and splits the "bit" of the axe ready for the steel: it is then thrown aside. All this is done at one heat, and in less time than it takes to write the *modus operandi*. The blade of the axe is then put in and welded, and passed along to the forger, tempered, and cast upon the ground to cool. As soon as cool it is taken up and planed down to an edge by a planing machine, and finished up with the emery wheels—painted, labelled, stamped, and ready for market. —*American Paper.*

**FARM ARCHITECTURE.**—The *North British Agriculturist* has been drawing the attention of its readers to the desirability of conferring something like an architectural character on farm buildings, and to the facility and cheapness with which this might be done.

**THE EXTRAMURAL INTERMENT BILL** giving power to railway companies to form cemeteries, was lost on second reading by 123 to 4.—The Government Bill is postponed for a few days.

**GRANITE FROM CHINA.**—The ship *Charlotte Jane*, arrived from Canton, has brought from that place 272 slabs of granite, as a portion of her cargo, consigned to order.

**THE CROWN GLASS TRADE** on the Tyne is said to be now completely paralyzed, only three out of twenty houses being in operation, and even these not fully employed.

#### TENDERS

For erecting Windsor terraces, and retiring-rooms for the Queen: Mr. W. Tite, F.R.S., architect:—

Bedborough .....	£3,810 0 0
Jay .....	7,592 0 0
Lee and Son .....	7,475 0 0
Piper and Co. ....	7,338 0 0
Grimdell .....	6,983 0 0
Nicholson and Son ..	6,079 0 0

For paragoning house at Blendworth, Hants, advertised in last week's *Builder*. Messrs. Habershon, architects. Quantities supplied by the architects:—

Assiter, Maidstone .....	£1,078 9 0
Taylor, London .....	1,779 0 0
Aylen, Portsea .....	1,756 0 0
Moore and Knight, Havant ..	1,729 0 0
Hendy, Portsmouth .....	1,698 0 0
Clear, Portsmouth .....	1,679 0 0
Barton, London .....	1,483 0 0
Gover and Son, Winchester ..	1,400 0 0

The new church adjoining was commenced two or three weeks since. Tenders for the same, last July, were as follows:—

Piper, London .....	£2,223 0 0
Pink, Harnham .....	2,190 0 0
Moore and Knight, Havant ..	2,050 0 0
Hendy, Portsmouth .....	1,992 10 0
Assiter, Maidstone .....	1,878 9 8

For the Hope Chapel and Independent Schools at Newport, Monmouthshire: Messrs. Habershon, Architects. Quantities furnished:—

H. Watkins, Newport .....	£2,970 0 0
W. Griffiths, ditto .....	2,960 0 0
H. P. Bolt, ditto .....	2,900 0 0
F. Corlett, ditto .....	2,870 0 0
W. Hunt, ditto .....	2,721 0 0
Geo. Jayne, ditto .....	2,779 0 0
Benjamin James, ditto .....	2,764 0 0
Piper, London .....	2,634 0 0



**GRAY STONE and WHITE FLAME**  
**CLIME WORKS, BEWLEY CLIFF,** of the Mad-  
 KENT, **GEORGE POTTER and CO.** having added the old and  
 well-known business at the Purbeck Works, Earlsfoot, Blackfriars,  
 and Camden-town, to their former town establishments, are  
 ready to supply all orders for Portland Cement, and all other  
 Trade materials, with Gray Stone, White Flame, and Chalk Lime,  
 upon the usual terms. Annexed is a list of their wharfs:—  
 City—Purbeck Works, Earlsfoot, Blackfriars.  
 Pimlico—Grosvener Basin.  
 Chelsea—Druce's Wharf.  
 Putney—No. 13, North Wharf (adjoining Great Western).  
 TOTTENHAM—  
 Camden-town—James-street.  
 City-road Basin—Wharf-road.







# The Builder.

No. CCCLXXX.

SATURDAY, MAY 18, 1850.

**T**HE "Metropolitan Interments Bill" appears to us, after due consideration, a most able piece of legislation, and should have the earnest support of all who feel the enormity, the indecency, and the danger of the present system of depositing the dead in the midst of the living,—evils not possible but certain, not confined to a few but extending to all. It is quite true that certain parts of the bill do not go far enough for some, but then these same parts go much too far for others; it is likewise thought by some that private interests are more considered than they ought to be, but then, on the other hand, a large and powerful body are of opinion that these interests are not sufficiently protected by the Bill; and if those who are honestly labouring to get rid of intramural interments and provide means for "burying our dead out of our sight," will take this clashing of interests into consideration, they will see that the Government measure is framed so as to have the best chance of passing into an Act, and that it should have their earnest support. If those who really seek the prevention of intramural burial quibble over clauses and stickle for the "bit more," they will find plenty who are interested in maintaining the present system to aid them in their obstructive course, and the Bill will be thrown out. Instead of getting more they will get nothing. This was so fully seen by the "National Society for the Abolition of Burials in Towns," that at a numerously attended meeting held last week at the house of Mr. Mackinnon, M.P., after a very full examination of the Bill, they abandoned a list of objections which had been drawn out, and passed unanimously a vote of thanks to the Government for bringing in the Bill.

Much of the individual opposition which has been shown to the Bill has been caused by the misrepresentation of interested parties, that its provisions are what those who have examined the Bill know they are not.

Clause 7, for example, which provides that the Board of Health may, if they see fit, purchase and take by agreement or otherwise all or any of the cemeteries mentioned in the schedule, stipulates that it must be *subject to the rights to graves, vaults, and monuments subsisting therein*.

By clause 12, the Queen in Council may, upon report of the Board only (*but is not forced to do so*), order discontinuance of interment in churchyards, &c.

By clause 13 the inhabitants of parishes comprised in the district or part in which interment is ordered to be discontinued are to have *right of sepulture in burial grounds provided under this Act*.

And then as to the assertion that the Government have taken forcibly into their own hands the conduct of all funerals, let the public read the clause (26), and judge for themselves. It runs as follows:—"And be it enacted, that the said board shall make provision for the management and conduct, by persons appointed by them, of the funerals of persons whose bodies are to be interred in the

burial grounds provided under this Act, *where the persons having the care and direction of such funerals desire to have the same so conducted*; and the said board shall fix and publish a scale of the sums to be payable for such funerals, inclusive of all matters and services necessary for the same,—such sums to be proportioned to the description of the funeral, or the nature of the matters and services to be furnished and rendered, but *so that in respect of the lowest of such sums the funerals may be conducted with decency and solemnity*; and the persons having the care and direction of the funeral of any person whose body is to be interred in any such burial ground, *where they are desirous of having the same conducted by the same board*, upon furnishing to the said board or their officers a note in writing, stating the scale according to which *they are desirous the funeral should be furnished*, and upon payment for such funeral according to such scale, *shall be entitled to have such funeral conducted by the said board accordingly*."

Parties may still employ their own undertakers if they will. But even if we admit that the management of all funerals will fall into the hands of Government—that they will monopolize the trade—we must remember it is a monopoly by which the public themselves are to benefit: *no revenue is to be derived from it*: the accounts will be audited, be open to public inspection, and be brought annually before Parliament.

In the report from the Board of Health, dated February, 1850, on which the present Bill is based, the evidence of some of the leading undertakers is given, who themselves show the extent to which the public are plundered in the time of sorrow and distress. Circumstances have led to the allowance of a certain scale of charges,—charges admitting of such enormous profits (with a sufficiency of business to keep the staff occupied), that they have brought an army of intermediate men into the field, who trade with the capital of others.

Mr. Sadler, a large undertaker, says "there are, perhaps, 3,000 men calling themselves undertakers, and who trade with the capital of about ten houses,"—these are upholsterers, parish clerks, tailors, &c. Surgeons and solicitors are tempted, by heavy commission, to recommend, and the servants expect to participate in the good thing. "I have myself," says the witness, "found three servants standing in my way on my leaving a house, and I have had to direct them to open the door before they would let me out!"

The result of this enormous competition is that, sometimes for weeks, respectable undertakers have not a funeral, the staff and the capital lie idle, and high charges must be made for the business when it does come, to cover the loss. The cost to the public can be lessened only by concentrating the business.

An objection has been made by some who are anxious to get rid of intramural burials, and are otherwise favourable to the Bill, to the clause (29) which provides for the compensation of the clergy. It directs the board to ascertain the yearly average during the last five years of the sums received by the incumbent in respect of interments, and then to pay to the incumbent for the time being a perpetual annuity of such amount as may appear to the board to be a just compensation, "having regard to the duties, and payment (if any) in respect of duties, from which the incumbent is relieved by the discontinuance of interment." By clause 31 power is given to the board,

with the approbation of the Bishop of London, upon any vacancy in an incumbency, to reduce the amount of the annuity, "in case it appear to them, having regard to the duties of such incumbent, and the value of the living independently of any annuity under this Act, just and expedient so to do."

The clergy must be paid; and it would be manifestly unjust to take away one means of doing this without providing another.

No time should be lost in providing places of sepulture away from town, and closing the present overfilled graveyards of the metropolis,—the fever-stills of this mighty centre of active life. Summer is approaching, and there is too much reason to fear that with it will again come the mysterious destroyer which last year carried off, in the metropolis alone, no fewer than 16,000 persons. The deleterious effect of graveyards on the atmosphere, and the connection between a tainted atmosphere and the cholera, cannot now want proving. In a little pamphlet published by the medical practitioners residing in the western district of Paddington, who have been collecting evidence to obtain the closure of St. George's burial-ground, in the Uxbridge-road, one simple fact is stated, which of itself speaks trumpet-tongued. In the houses immediately abutting upon the burial ground in question, MEAT CANNOT BE KEPT TWENTY-FOUR HOURS. This is not the assertion of one individual, but is repeated by the inhabitants one after the other,—*"meat cannot be kept fit for human sustenance twenty-four hours."* What must be the state of the atmosphere which human lungs are forced to inspire, whether fit or not?

Cemeteries must be formed, not merely for London, but for all the principal towns throughout the kingdom, and architects will be called upon to give them, by means of their art, that appearance of permanence, repose, careful attention, and solemnity, which they should present. The impressions which these give are most powerful, and should not be disregarded.

We will close our article with the following pertinent remarks by Dr. Sutherland, in the report to which we have already alluded:—

"The time has surely come when all trafficking in the spoils of poor humanity should cease, and when the whole process of interment should be undertaken as a solemn and pious duty, which society owes equally to the remains of all her members, however exalted or however humble.

In executing this trust it should never be forgotten that the very fact of death exerts an influence either for good or evil on the community at large. All the rites of sepulture among ancient nations clearly point to the recognition of this influence. The tombs erected in the great ages of antiquity were as remarkable as their temples; and while we wonder at the matchless sculptures which decorated their religious edifices, we should not forget that admirable works are also to be found on the funeral urns and monumental structures of the same era.

The deepest emotions of the human soul have a tendency to find a voice through the beauties of art, and it is perhaps not too much to affirm that the latter owes as large a debt to those sympathies which encircle the ashes of departed friends as to the exercise of the religious sentiments. In modern times the same desire to connect the beauties of nature and art with the rites of the tomb has shown itself wherever the barbarous practices of the dark ages have given way before enlightened improvement. Some of the extramural cemeteries of the continent are decorated with fine specimens of sculpture and fresco painting, while architecture has also lent her majestic proportions for the same object in the grand



structures which adorn the Campo Santos of Italy and Germany.

The close connection, indeed, which exists between art and sepulture is universally acknowledged, but its true relationship is still but imperfectly understood. Our own custom of erecting votive statues to the memory of our great men, within the precincts of our national temples, is an ever-recurring expression of the same deep sentiment which pervades humanity.

Such memorials, from the very nature of the case, must be limited in number. We cannot build a monument or rear a statue for all who die; but Nature has given us elements which are far more accessible, and which at the same time admit of more beauty of application. We can set apart a due proportion of the earth's surface as a resting-place for the dead; we can adorn it by the aid of landscape-gardening, an art which is better understood in England than in any other country; it is possible to erect our cemetery chapels in a style far superior in architecture, and better adapted to the purpose, than any which at present exist: we might even surpass the grandeur of the majestic cloister which encloses the Campo Santo at Munich; and by thus combining together, as far as practicable, the beauties of natural landscape with artistic decoration, we might make the last abode of the dead at once appropriate for its sacred purpose and an instrument of moral good to the people."

#### ROYAL INSTITUTE OF ARCHITECTS.

On Monday, 13th, the members mustered strongly to meet the President, who had arranged to take the chair for the purpose of presenting the Royal medal to Mr. Barry. An attack of erysipelas, however, we were sorry to hear, prevented his Lordship from attending, and the presentation was therefore postponed. Professor Cookerell, V.P., took the chair: Mr. Wardell was elected, from the class of associates, as fellow, and Mr. Peacock was elected associate. The donations included the Wren medal, presented by the Art-Union of London, and several contributions from foreign members. Mr. Donaldson justly observing in respect of these, that there was no part of the Institute's proceedings more valuable than the connection opened by it with foreign architects. A letter was read from the venerable Sulpice Boissière, of Cologne, and one from Mon. Delsoux. The latter forwarded illustrations of the well-known "Bishop's Palace," at Liège, and of the church of St. Jacques, in the same town. One of Mons. Heideloff's works being presented, the chairman observed,—that the author of it, whom he had met when in Germany, was a most devout architect, reminding him of those men of the old time who found all joys in the exercise of their art.

The Rev. C. H. Hartshorne then read a paper "On the Military Architecture of Great Britain," consisting mainly of a detailed account of Caernarvon Castle and Conway Castle, with too little reference to architecture. Mr. Hartshorne said that the Pipe Rolls, dating from the 37th of Henry I., and the Close Rolls, from John to Henry IV., give with great minuteness all the expenditure on royal buildings, and are in consequence most important documents. We learn from them that Bridgnorth Castle, which is 25 feet out of the perpendicular, was commenced about the fifteenth of Henry II.; the keep of Dover Castle in the same reign; Colchester in the time of Henry I.; and so badly were most of these castles built, that in the course of ten years they all needed repairs. It appeared that at Caernarvon Castle, in 1284, the wallers (or rough masons) were paid 3d. a-day, the carpenters the same; the artilleryman who appears to have acted as director of the works, 8d. a-day. He considered the sums paid should be multiplied by fifteen to bring them to present value. In 1316, at Caernarvon, the *magister*, or master mason, had 13s. per week. The great hall at Conway was removed and set up at Caernarvon. The notion that Caernarvon Castle was built in a year was a vulgar error; it was going on from the eleventh of Edward I. till the fifteenth of Edward II., or thirty-three years in all.

Those who know the number of castles that

have been examined and measured by Mr. Hartshorne, and the attention he has paid to their construction, must have regretted that he confined himself to a relation better suited for the Antiquaries' than the Architects' Institute.

Mr. Donaldson drew a comparison between the Greek acropolis and our mediæval castles, and suggested various points in connection with castle architecture which required investigation. The word "inner bailey" and "outer bailey" next the gateway, on some of the plans, he said, suggested the passing notion that our "Old Bailey," proximate as it was to New-gate, had some such derivation.

Mr. Tite thought our Old Bailey was named rather from the *baillif* than the *balkum*.<sup>\*</sup> He had never understood why the Scotch castles were all so inferior to the Welsh castles. Amongst the desirable points of inquiry concerning castle building, the construction of lofty towers, and the means adopted to prevent failure, which all who had been engaged in such works knew was imminent, were very important.

The report of the council read at the annual meeting shows that the Institute now consists of 121 fellows, 22 honorary fellows, 15 honorary members, 81 honorary and corresponding members, and 101 associates, making a total of 340 members, and that they have increased the funded stock by investing 1367. 5s. in the consols, being the compositions of three fellows and one honorary fellow; and 191. 16s. 11d. in reduced annuities, accumulations for the travelling fund. As to the '51 Exhibition, the report says:—

"This Institute cannot but feel that great as has been the advance of this country in all matters connected with manufacturing skill, still there is to be desired a more intimate union of fine art in design in the productions of various departments. The Institute may confidently expect, however, that the noble competition, about to be opened between British and Foreign talent, will not only call forth a vigorous effort and great exertions in our countrymen for improving the tasteful products of our manufactures, but we may look forward with confidence to a marked advance in art, as applied to articles of every day use by even the humblest classes. The exhibition of foreign taste and skill must also have the important result of affording us useful lessons, and of hastening on the period when the English will not tolerate any production which may betray incorrectness of design, crudeness of form, or want of harmony in colour. The advance which recent ameliorations in the excise laws, and a growing taste for the beautiful, have produced in glass, in mosaics, in porcelain, and other objects of decoration applied to construction, must materially promote a steady progress in the right direction.

"The ornamental conceptions of the architect must not be executed with merely mechanical accuracy, but must have infused into them the artistic sentiment of the designer, and this cannot be effected until our modellers, our carvers, our plasterers, our masons, and such artisans, are better able to appreciate form. A school has very recently been established in Camden Town, under the auspices of some earnest friends of art. At the first opening nearly 200 mechanics presented themselves for admission, many of whom had come several miles, in hopes of usefully devoting to improvement the evening hours of their hard-working days."

Further on it says,—

"The social and moral amendment in the condition and comforts of the labouring classes, contemplated by so many good and great men of our day, seconded by the enlightened co-operation of Government, claims the utmost consideration of the architect, by whose professional skill and experience such measures can alone be effectively realised. The public baths and washhouses, although they must immensely fall short of the extent and gorgeous splendour of the Roman Therme, may, by tasteful disposition, enlarged conception, and skilful arrangement, be made to add to the embellishment of the metropolis without any unnecessary additional expenditure. The dwellings of the poor demand the most economical adaptation of means, and a profound acquaintance with sanitary exigencies. Our prisons and lunatic asylums, our markets and slaughterhouses, as also our cemeteries, and the sewage of towns, each with its peculiar and complicated requirements, to be surmounted only by great study, and with physical laws and first principles

<sup>\*</sup> Stow says of the Old Bailey,—“I have not read how this street took that name, but is like to have risen of some court of old time there kept.” Naisland and others say that it derives its name from *Bale-hill*, wherein was situated the *Bale*, or *baillif's* house, wherein he held a court for the trial of felons. The place where the sheriffs keep the prisoners, is still called, we believe, the *Bale dock*.—Ed.

still unsettled, must necessarily engage our attention. For the state of society and public opinion demand imperatively of the architect, as indispensable and absolute arrangements, all those combinations commensurate with the claims of humanity."

#### DOMESTIC ARCHITECTURE OF BARBAROUS NATIONS.\*

THE PACIFIC ISLES — CALIFORNIA — SIBERIA.

Our third and last glance at the dwelling house of the barbarian shall range, first, over the sunny isles of the Pacific. There society has once elevated itself below the last level of savage life, and again sunk under the degenerating influence of foreign misrule. We find, however, curious and comfortable specimens of domestic architecture. In Taheite, the native houses, built of bamboo, present a luring appearance of comfort. Each is erected on a quadrangular platform of coral blocks, about 2 feet high, forming a basement considerably larger than the ground floor. Uprights, about 4 feet high and 2 inches in diameter, are arranged so as to inclose an oval space, and across these are laid heavy beams of the bread fruit tree, with lighter rafters of bamboo. The solid timber is much used, as a sure protection against the dreaded white ant, which will not touch it. The house is walled and roofed with thatch of leaves, and its several parts are wrought together by thongs, made from the fibres of a certain plant. Neither nail, nor bolt, nor peg is used throughout. Formerly the construction of such dwellings was the pride of the people: every post and beam was woven over with a beautifully plaited mat, and the whole was snug, warm, and compact as an elegant basket; but now less care is taken, although the habitations still present a neat appearance, with the floor strewn with rushes, and mats finely woven, rolled up all along the walls, in the same manner as blinds, to be let down when the sun's rays fall too warmly into the interior. Overhead are hung cases containing muskets, the principal treasure of the Tahitian, who longs one day to employ it in the service of England against France.

The palace of Pomare is less picturesque than the houses of her humble subjects. It is like a large haystack pierced with a row of windows, with a door at one end. Over-shadowing it is the French governor's mansion, something like a huge country dancing-house, surrounded by a railing, with an ugly roof, and a coarse wooden gallery running round. These are the notions of European architecture which the South Sea islanders imitate from actual observation. They should see London.

In some of the islands it is the fashion to build one room with a sloping floor, where mats are spread for beds.

In Woahoo the king has a stone building for a palace, but prefers a rural retreat, after the fashion of his ancestors. The houses of the natives are merely large light frames of wood, cottage shaped, with sloping roofs, thatched with grass. They have only one room, half of which is neatly matted, while the rest is piled with mats to a considerable height, for the luxurious islanders to repose on. These fragile erections have luckily little wind to contend with, since a storm that would not move a slate from an English house, would sweep away the capital of Woahoo, carry it over valley, cliff, and mountain, and whirl it into the sea. So much does the style of domestic architecture form itself under the influences of local circumstances. Where hurricanes are frequent, the buildings are made low, massive, and substantial; and where earthquakes are common, as at Manila, in the Philippine islands, no dwelling is more than two stories high, and each is defended by huge projecting timbers. But at Woahoo, where the breeze is ever light and idle, the hut is frail and flimsy too.

In the Navigators' Islands the houses of the natives are erected on basements of loose stones, filled in with earth. They are of an oval shape, formed of the wood of the barren bread-fruit tree, and thatched with the leaves of the sugar-cane. The roof slopes from the top to within four feet of the ground, where it rests on solid upright posts, only covered

\* See pp. 98 and 145 ante.



with hangings of matting, that can be removed at pleasure and so leave every part open to the sun or the wind. Very frequently a sudden gust entering in this manner lifts the roof off, and bears it away, leaving only the upright timbers in the ground. By keeping careful watch on the winds these accidents can be avoided.

Since we have a large expanse of the world's surface to travel over in the present sketch, we now take a flying leap to California. There the Indian savages dwell in habitations of a most peculiar construction. They are large and roomy: the side-walls are low, and formed of posts, connected by a thatch, and plastered with clay, which hardens in the sun, and forms a solid defence against the weather. The roof is broad, high, and sloping, formed by a thick, warm, and heavy thatch, with cross-beams of rough wood and rafters laid lengthwise to assist in the support. These meet in the central line, where a strong timber runs the whole length of the building, upheld by rough trunks of trees, with forked branches left to aid in bearing up the ponderous roof. The floor is the earth, beaten hard, with piles of dried grass to serve as couches.

Among some of the wilder tribes, mere huts built of branches, and thatched with leaves and ropes of grass, constitute the dwellings of the people. As we approach the borders of the United States, beyond the snowy mountains, the well-known Indian wigwam takes the place of the more curious construction, and with these the public has now been made too familiar to render it necessary we should sketch them here. But we would wish the reader who peruses the present remarks to carry along with him, in his mind, a comparison between the dwellings of the untaught races of the wild regions we allude to and the magnificent habitations which civilization has erected for her children.

If we were strictly to describe the domestic architecture of all savage nations, we should be compelled to give an account of the palaces of those twin cities of barbarians, St. Petersburg and Peking, with many other towns, which the simple reader might be startled to find placed within such a category. But we must, from so strict an adherence to the subject, refrain and proceed to those waste regions, the convict colonies of Russia, the snowy wildernesses of Siberia, where man, under the paternal sway of the Christian Czar, is as degraded and debased as under the despotism of Whang tee Fou, or any other imperial savage that ever sat on his proper seat, a throne.

The Bashkirs that dwell in the wild deserts south of Yehaterinburg, in Siberia, live half the year in portable tents, which they bear about from place to place, and during the other half inhabit small snug wooden huts, always built on the border of some wood. There is nothing peculiar in their construction. They are just such structures as might be supposed to be erected by instinct, by men having plenty of timber at hand, in want of houses, and without knowledge of the rules of art, even in its simplest rudiments. There is art, there is science, in domestic architecture, as in all other things affecting the welfare and comforts, and guided by the civilization, of its people. A house well built is a monument of its builder's skill, and as the writer of a book is proud of his production, as the painter of a picture is gratified by the contemplation of his work, as the sculptor's eye glows on the survey of his statue, so the architect delights in the view of a magnificent structure raised by skilful workmen under the superintendence of his scientific eye. But among savage races, shelter is the only object sought; and when the plan of a dwelling is once formed, it is copied by succeeding generations, so that each man's house is like that of his neighbour, and the habitations of one age are the reproductions of the last. Barbarians, like birds and beavers, seem to do all things by instinct.

Some of the Russian settlements possess good houses, built of timber, and commodiously arranged; but with a singular economy of the interior space, as well as a disregard for comfort, the staircase is outside, running up the wall, with an entrance midway into the upper story. Only in a few places is this not the custom. In the inside the beams and joists are not hidden by planking, but cased

in coverings of polished fir wood, the material of which all benches and tables are made. But these houses are inhabited by the aristocracy of Siberia. The humble people dwell in others of far different, as well as very varied descriptions. Armar, a German traveller, visited some of the Ostyak yurts, or huts. Approaching them over the plain, he saw nothing more than what appeared to be low mounds of snow, with small openings, through which a ruddy light streamed over the white ground, and bright sparks and flakes of fire crackled and flew out through the darkness.

"Stepping through the door, we entered the hut, the floor of which was a good deal lower than the ground. Opposite to the entrance was burning a brisk fire on a raised hearth of clay, in which, in accordance with the Vogul and Tartar custom, an iron pot was sunk. The fire required to heat this lay deeper than that which warmed the room. The fire hearth and fire place occupying a width of 4 feet, reached nearly to the wooden wall of the building, which was protected from the flames by a layer of clay, a foot thick. A cylindrical flue of the same material, connected with the back of the hearth, rises perpendicularly to the roof. The flue is about a foot and a half wide, but enlarged to 3 feet immediately above the fire. Some broken places in this piece of work, allowed us to see how it was constructed, and on this subject we afterwards received ample information in the yurts which we subsequently visited. A frame work of rods and ledges, cylindrically shaped, is plastered over with soft clay."

We should like to see at the approaching Exhibition of the Industry of All Nations one of these chimneys of basket-work and clay placed by the side of the model of a chimney in some London mansion. The contrast would be a strong illustration of the progress made in the domestic arts by the savage and civilized races.

Round the interior of the yurt ran a raised platform of clay, about 6 feet high, sacred during the day to the women and children, but used at night as the sleeping place of the family.

In another village near this the yurts were square, built on a massive plan and heaped over with earth, which again, heaped over with snow, rendered the interior as warm as an egg-hatching oven. Between each building clusters of rough bushes grow, which give to the place in summer a most cheerful and picturesque appearance, especially as the huts are then overgrown with the scanty vegetation of the region, so that on entering one of them you appear to be penetrating some mound of fruitful earth, scooped out by nature or the industry of man. In the interior the raised platform is divided by partitions reaching to the roof into a number of separate chambers: these all open towards the middle of the hut and the hearth, so that each is equally warmed.

The Sosnovian yurts are still stronger buildings. They are square in shape, and built of heavy logs planed and laid one upon the other, with others from wall to wall forming the roof. Against each wall large quantities of earth are piled. The entrance is always on the south side, and only half the height of a man.

Facing the east is a small square opening left between the logs for a window, and closed by a block of ice a foot thick, propped from without by a pole thrust into the ground. A supply of such heavy flakes of ice lies before each habitation. The fire on the earth thaws the interior surface of the ice-window, rendering it as smooth as a mirror. The outside is rough, yet a light, whiter and clearer, penetrates through this window, than those glazed by fish or dried fish-skins, which are commonly used. When one block is melted another supplies its place.

In the centre of each assemblage of huts are other edifices of a strong construction. They are erected on strong wooden piles, eight or ten feet high, and ascended to by a notched pole, serving as a ladder. The elevation from the ground is adopted to preserve the interior from the thievish visits of dogs, since the place serves as a magazine of provisions.

As we penetrate still deeper in the interior of these remote and little known countries, we find the people dwelling in moveable habitations, composed of a tall peaked frame of wood, covered with layers of reindeer skins,

laid in the manner of slates or tiles, with the edge of one overlapping the other, and so on, from the top to the ground. At the bottom the snow is thrown up and beaten hard all round this singular dwelling, while, at the summit, a small opening is left for the exit of smoke.

The Yakuts inhabit one description of houses in winter, and another totally distinct in summer. The dwellings for the cold season are low clumsy huts, plastered thickly with cow-dung and earth. The doors are heavily curtained with coarse hairy hides, and the windows glazed with ice. The whole, covered with snow, is sufficiently warm and comfortable. The summer habitations are composed of lofty conical frames, formed of slight poles, 20 feet high, woven together with broad bands of a beautiful shining yellow bark, which is perfectly flexible. Each strip of this singular and useful material is sown to the next with a strong horsehair thread. Seen from a distance these dwellings appear like tall yellow bee-hives, embrodered in variegated lines.

There are innumerable little variations in the structure of the dwellings among these wild and strange tribes of men, but they are generally alike in the main peculiarities. The reader will have perceived from this slight sketch of their domestic architecture, to what stage of progress they have arrived,—for we conclude as we commenced, by saying that, in all times, and among all men, the style of building habitations is a fair standard of climate, civilization, and general character. To form some rough idea of the manners, customs, and tastes of a people,—the temperature and condition of a region,—and the progress it has made in the arts and processes of refined life, we have only to enter the dwelling-house, and observe its characteristics. Even in our own country, with all our infinite varieties of position, of taste, and character, we form from a glance at the economy of a house some notion of its inmates. Apply this test to the races of the world, and the result will be no deception.\*

#### THE SEVEN-MILE TUNNEL THROUGH THE ALPS.

The following details are gathered from Dr. Granville's paper, as promised.

To give at once some idea of the boldness of Chev. Mons' undertaking, we may, in the first place, state that in its progress the tunnel must pass under some of the most elevated crests of Mont Cenis,—one, in particular, where there will be 4,850 feet of mountain, capped with eternal glaciers, over head, at the middle of the tunnel, so that not only will the workmen and machinery in construction, and the passengers and trains in transit, be buried to that depth in the heart of the mountain, but all idea of shafts, either to facilitate excavation, or to promote ventilation, must be out of the question. The breath of life itself must be respired, from either extremity, with artificial aid, in shape of currents of fresh air transmitted, and of foul withdrawn, by mechanical apparatus ever at work, at least during excavation, which is also itself to be effected by machinery of a new and simple nature, worked by water power of mountain streams whereby the trains are also to be run through the tunnel, which ascends, from the northern or Savoy side, at Modane, all the way to its exit at Bardonnèche, with a gradient equal to 19 in 1000.

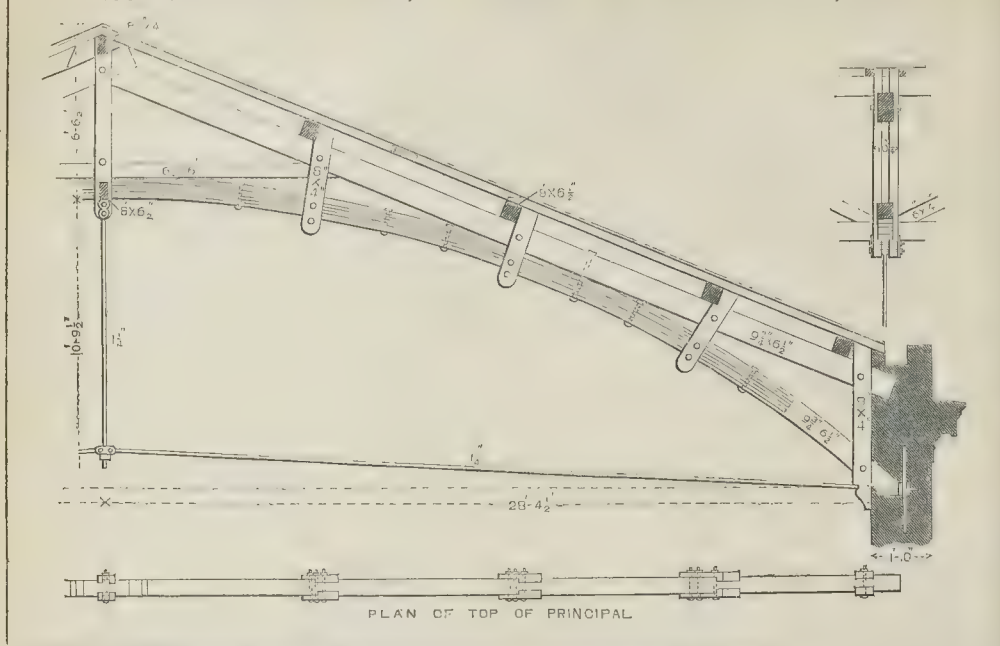
The excavating machinery consists of—

1. Two great hydraulic wheels, 18 feet in diameter, which move—
2. Two pulleys (with an endless cable twice round them) placed horizontally, and of 30 feet diameter, performing 22½ revolutions in a minute.
3. An endless cable connected with the cutting or excavating machine. This cable will move at the rate of 35 feet a second.
4. A counterpoise or weight to keep the endless cable in a suitable state of tension at the opposite end of the hydraulic wheels, and to travel on a wagon between these and a great well sunk purposely to receive a corresponding weight at the end of a rope.

\* This and the previous articles are the result of personal observation in the countries mentioned.



## ROOF OVER LUGGAGE SHED, ST. GERMAIN AND ROUEN RAILWAY, PARIS.



PLAN OF TOP OF PRINCIPAL

5. The machine, which, once presented to the rock, projects into it simultaneously four horizontal series of sixteen scalpels, working backwards and forwards, by means of springs cased in, and put in motion by the same water power. While these are at work, one vertical series on each side works simultaneously up and down, so that together they cut out four blocks, or rather insulate four blocks on all sides, except on the rock behind, from which they are afterwards detached by hand.

During the operation, a squirt-pump throws out a jet of water between each pair of scalpels to prevent the heating of the tools, to soften the stone somewhat, and to wash out the rubbish.

After their complete separation, the blocks are pulled out by help of the endless cable, and received in a waggon underneath, to be withdrawn from the tunnel altogether.

The rocks expected to be found are gypsum, limestone, and quartz veins. No land-drift or land-springs are likely, it is thought, to interfere with the progress of the work, or to require any masonry within the tunnel. It has been already ascertained that each of the two machines, at the opposite ends of the tunnel, will excavate to the extent of 22 feet a day, and it is estimated that the whole excavation will be completed in four years. The gallery to be perforated by the machines will be 13 feet wide by 7 feet high, and this once cut through, the bore will be enlarged by ordinary means to 25 feet in width and 19 feet in height, and a double line of rails laid.

Ventilation is to be effected by attaching a ventilator to the axis of each *poulie de support*, the movement of which being rapid and continuous, the ventilating machine, composed of a drum and a tube, will be constantly inspiring fresh air and expiring foul.

The estimated cost of this great tunnel is only 13,804,942*f.* (552,197*l.*) It is to be immediately commenced at the north entrance.

**WORKMEN'S LIBRARIES.**—A large and influential meeting of the parochial authorities of Whitechapel, and the working men of the district, was recently held, for the purpose of opening a Working Men's Library and Reading-room. Upwards of 1,200 working men were present. Lord Ashley presided.

## ROOF OF A LUGGAGE AND GOODS SHED AT THE PARIS STATION OF THE ST. GERMAIN AND ROUEN RAILWAY.

THIS roof was erected about six years ago by M. Armand, architect. The span between the walls is 56 feet 9 inches, and the distance of the principals (three in number), from centre to centre, is 18 feet. The timber arch, or bow, consists of seven thicknesses of plank, together 9½ inches deep: they are bolted together about every 2 feet: the ends of the bow are solid, and are connected with the laminated part by slits being cut in the solid timber into which the alternate thicknesses of the laminated part are fitted, and then bolted together; by which means greater solidity is obtained at the ends, for securing the 1½ inch iron tie rod which connects them. The absence of any wall plate here is rather remarkable. The arch is secured to the principal rafter by double ties, which are bolted to both: the ridge is trussed from one principal to the other, giving great stiffness to the whole framing. From calculations, it appears that the quantity of timber in the principals (or supporting parts) is, within a small fraction, two-thirds of that employed in the purlins, rafters, &c., or parts supported.

The roof is covered with zinc, on poplar boards, only seven-tenths of an inch thick.

C. F.

## A FEW WORDS ABOUT THE '51 EXHIBITION, SAID AT KENSINGTON.

THE proposition "That the proposed exhibition will be of great advantage to all classes, whether as producers, distributors, or consumers," has already been moved to the world, and carried unanimously. I can scarcely, therefore, expect that Kensington, from its locality—from its position as the friendly battle-field on which this fight is to be fought, in which both are to be victors—that Kensington, connected as it is so much more nearly with our estimable and admirable Sovereign than any other district, will receive with anything but the utmost enthusiasm a suggestion made by Her husband, whose triumph is unquestionably looked upon by her as her own. The notion of an exhibition of this sort has occupied many minds for a long time; but it needed the power of a prince to give it shape, and transform it from the suggestion of

an exhibition of the works of the United Kingdom into an Exhibition of the Industry of all Nations. But a very few years back, princes were otherwise employed than in making and carrying out such suggestions. Our histories are records, as you all well know, rather of tumults and battles than of peaceful progress: the memorials we have raised are to soldiers and sailors: but I think the time is coming when those who make the unhealthy town healthy—who lengthen life and increase enjoyments—those who have harnessed steam and chained the lightning, will have memorials erected to them. "Peace hath her victories as well as war;" and it appears to me that this exhibition is a step in the right direction towards obtaining a recognition of the peace victors,—a step tending to attain a right appreciation of the dignity of labour, and of the gratitude we owe to art. The endeavour of my life, if I may be permitted an egotistical allusion simply to show you this is no new opinion on my part, has been to popularize art, and put within the means of the multitude its enjoyments,—to aid in extending a knowledge and love of art, and to raise the character of the artist in the mind of his fellows. I have always maintained, and will maintain, that to those who create for us elevating joys, give us fine thoughts, and noble aspirations, our gratitude and thanks are due. What would a country be without the fine arts? Rightly does Thomson say, that however wealth may increase, and the land may be overpread by luxury,—

"Yet, these neglected,—these recording arts,—  
Wealth rots a nuisance, and oblivious sunk,  
That nation must another Carthage lie."

Some have asked, "But what good is to follow from this Exhibition?" "What good is it to be to me?" And some have whispered,—  
"Why should I show to others that which will let them know what I have done, and what I can do, and so enable them to compete with me?" I would venture to remind those who do so whisper, that "There is that scattereth and yet increaseth, and there is that withholdeth more than is meet, but it tendeth to poverty." How does a master teach his pupil but by setting before him fine works as examples? how do we endeavour to form and improve our own taste but by examining those works which have received the applause and the stamp of approbation of wise



men in times past? So we thus increase our own knowledge, strengthen our judgment, and lay up means of comparison in our mind. Some, again, have said, "we shall be beaten." Probably we may in some departments; but, if so, we shall be beaten into beating our visitors hereafter; and that will be one of the good results of this exhibition. To say that there is no power to excel in art in England is quite preposterous. It used once to be said, and, more than that, believed; but I venture to assert that at this time the English school of art is second to none; and, if we wanted proof of its excellence, I need only appeal to Kensington, wherein we now stand, with its Webster and Mulready, its Uwins and Creswick, its Cope and Bell, and a dozen others, who stand eminent in art, not merely in England, but all over the world. What we do want, however, is, artistic operatives. The poorer classes have been debased from the means of improving themselves, and now are taunted with not having done so. Our schools of design, and our art-unions are doing much, and this exhibition will do more. It will offer a neutral ground where the capitalist and the operative, and where the English and the French (their "natural enemies," as they used absurdly to be called), may meet in generous rivalry, emulating which shall outdo the other in stimulating industry, in producing fine things, and in putting within the reach of all what once were luxuries and enjoyed only by the few. The state of society is not now what it used to be. It is not admitted now that the multitude are simply the slaves and ministers of the few; but the few who are made by the Creator fitted for leaders, now devote their power and their talents to the improvement of the masses. I have been very much struck within the last few weeks, at some meetings of workmen—trade societies,—to hear bodies of 100 or 120 men, working joiners and masons, acute and clever men, talking of capital and machinery as their great enemies, and asserting, that if machinery had not been made in England, they would have been the better for it. I scarcely believed that such ideas were now current, though some years ago they were generally entertained. I should have been ashamed to remind them of the often mentioned illustration drawn from printing,—the petition of a score of copyists against the printing machine, as taking away their bread, and the fact that it now affords to thousands an opportunity of obtaining the means of living, to say nothing of the improvement and advantages it has brought to the whole world. So also with regard to weaving. A hundred old ladies petitioned against the stocking loom as ruining them in their knitting, and superseding hand labour, whereas we know that where one person was sustained in that way, there are thousands supported now through the extensive demand created by the increased and cheapened supply. Now I believe that any exhibition such as that proposed, which shall bring masters and men together, and provide a holiday for the whole world, where all may enjoy as well as learn, must do a vast deal of good, not only in the improvement of manufacture and art, but in beating down those false notions which induce the operative and the capitalist to consider their interests antagonistic, and not as they really are, coincident and mutual. There are one or two practical points to which I would take this occasion to advert. The hope has been expressed in various quarters that some means will be adopted to protect the inventors of new ideas. There may be hundreds of able and ingenious men who have some new and practical idea, which, under the present law, if they exhibit, will be considered as published, and they would thus be prevented from gaining a patent. I hope the mention of this point in such a meeting as this, where there are men who have authority, may lead to some arrangement which may enable such thoughts to be exhibited, and yet not destroy the power of the inventor to obtain a patent hereafter.\* Another point of great importance is, that individual operatives should exhibit their designs, and that in all cases the designer's name should be affixed, as well as the manufacturer's. Those men, who are at present unknown, who are

labouring in the production of the works we are constantly admiring all over the metropolis, should, on an occasion like this, have the means of appearing in their right position. Let the manufacturer have all due credit, and all just thanks, for the means of production he has provided; but let the mind which has produced and invented, also have a share of public approbation. I will now but advert to the building that is to contain this vast exhibition, to accommodate which it must cover, they say, 20 acres; the cost of which has been set down at about 120,000*l.* It is a grand idea, and a great sum! England, however, is pledged to carry out the scheme well, and I am quite sure Kensington will help England to accomplish it. I ask for your strenuous aid; and I would beg you to remember in it all, that "in the unreasoning progress of this world, a wiser Spirit is at work for us; a better eye than ours." GEORGE GODWIN.

#### ROOF OF WESTMINSTER HALL.

ALLOW me to remark that your correspondent, W. T. T., has quite misunderstood the drift of the letter to which he alludes, and will see on a second reference that, far from condemning, as he supposes, open roofs in general, I express a conviction that they may be made beautiful and truthful (but not by the Gothic treatment); and that, instead of recommending stone as a material for a roof, I merely insist on its advantages for a ceiling, and on the utility of ceilings in general. This comparison, however, between ceiled and unceiled buildings forms no part of my main argument, but was introduced to anticipate what might seem a harsh deduction—viz., that if vaulting were an absolute essential to the Gothic, that style would be altogether forbidden us, since our buildings are not vaulted, and no one will go to the expense of vaulting merely to carry out a principle. To show, therefore, that my position did not exact anything so hard as the entire abandonment of Gothic architecture, I thought it proper to point out that there were advantages enough in vaulting amply to justify its adoption in any modern building, not for the sake of reviving an old style (which I should call almost absurd piece of extravagance), but for real utility; in a word,—for making a better building, not a more Gothic one.

Without once denying my position (the falsehood and absurdity of all Gothicized timber roofs), "W. T. T." says, before condemning such a work as Westminster Hall, we should look at the objects proposed to the architect. Most certainly we should, and I quite agree with him that it would be very difficult to construct a room and roof in which those objects he mentions should be better attained. But is this sufficient to render the work a piece of true art, or a model to succeeding ages? Certainly not. On the contrary, if these objects were the only ones proposed, or were looked on as paramount to all others,—if the room was only required to be without obstructions, and "feasible, imposing, and grand," at the expense of all other qualities,—then, Sir, I contend that though the architect had perfectly attained all these objects, his work is not true architecture. I base my objections on the ground that truth is an essential in every work (even though not mentioned in the architect's instructions),—that it is more essential than grandeur, magnificence, or any visual effect,—that the difficulty and merit of the art consist in reconciling these objects with truth, not in sacrificing them to truth (as engineers pretend to do), nor yet in sacrificing truth to them (as the designer of Westminster Hall did), and that the moment an artist does this, he in fact evades the difficulty without which there is no art, he cuts the knot, he gives up the problem. The canvass splendours of a Parisian fête may teach you, that, once emancipate us from the stern obligation of truth, and grandeur and magnificence are mere child's play, requiring no art beyond that of the upholsterer or the plasterer. Mr. Ruskin (amid all his mistakes) has yet, on this point, most truly said, that all the beautiful or grand effects ever produced, are not worth a lie. Now, I freely admit Westminster Hall to be the most magnificent roof yet constructed; but, unfortunately, it is also

the most magnificent falsehood ever told in timber (there have been, indeed, greater in stone). I call it false architecture, because its whole decoration is a disguise, a clothing borrowed from stone construction, and here rendered meaningless. I call it also false engineering, because the disguise is not (as in some Gothic roofs) confined to ornamental sham arching, but allowed to run into structural members, and renders them unscientific, wasteful, and inefficient. W. T. T., indeed, asks whether, had it been very faulty in construction, it would have stood the test of so many ages?—a question which would imply that he has seen it only in engravings. Otherwise, he must surely have been aware that it has not stood this test, but has sunk and become deformed throughout its entire frame.

As for recommending stone as a roofing material, he will not find a word in my letter to that effect.

I will certainly make the useful comparison suggested by W. T. T., but this question has no bearing on the two originally mooted, viz., the inadmissibility of the Gothic treatment in open roofs, and the advantages of ceiled over unceiled buildings, both of which he seems to have left untouched. E. L. G.

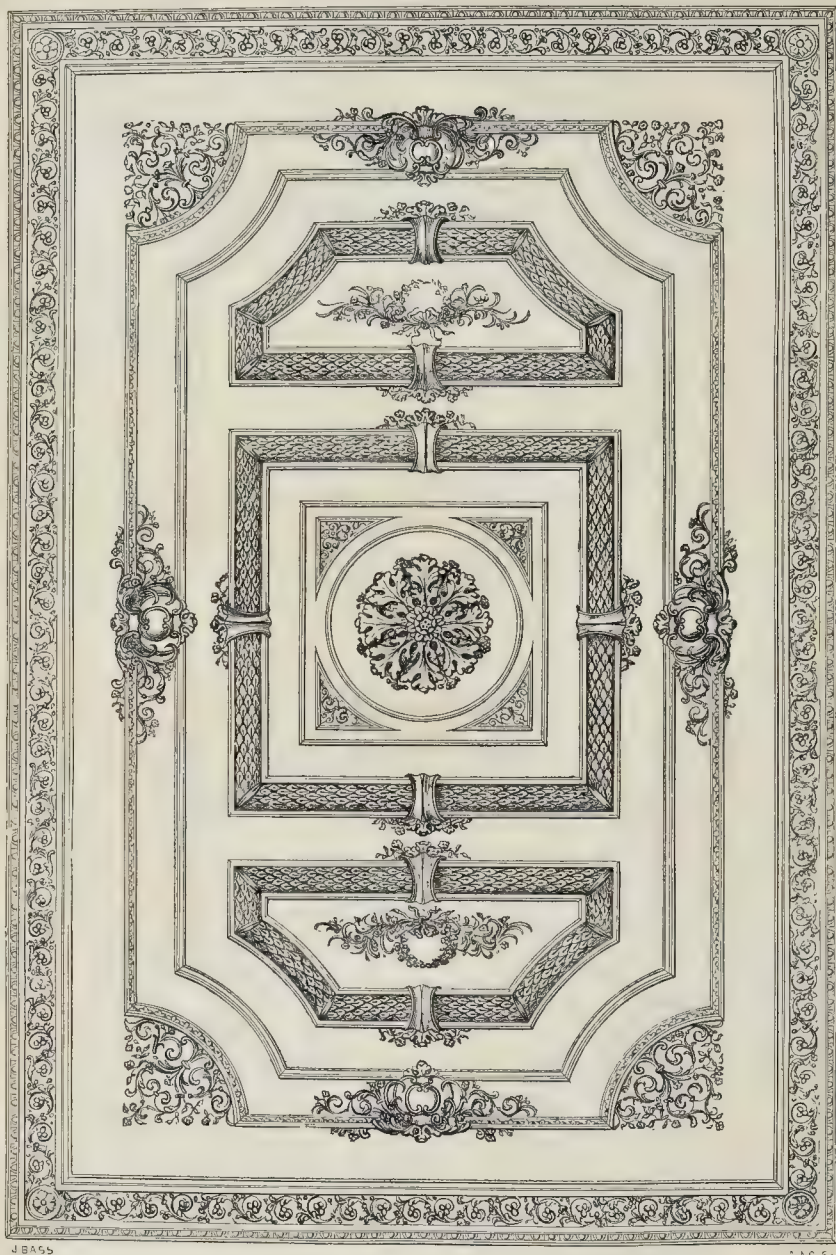
#### NOTES IN THE PROVINCES.

THE foundation stone of the Lincoln and Lincolnshire Penitent Females' Home was laid on Thursday in last week.—During the ensuing summer the whole of the south side of St. Mary's Church, Melton is to be repaired, and other restorations effected.—An intended project of the Inclosure Commissioners, to shut out the public of Oxford and its vicinity from many of their healthful walks and commons, of immemorial right and usage, has been thwarted, it is said, by exposure in the *Times*.—The foundation stone of an Independent Chapel was to be laid on 15th inst., at Haylands, near Ryde. The Baptists propose also to erect a chapel, at an estimated cost of 1,500*l.* (with 500 sittings) and to include schools, vestry, &c.—Plans of the proposed Worcester Diocesan Training School, at Sallay, prepared by Mr. B. Ferry, have been sent to the Council on Education, previous to tenders being sent in for the erection of the buildings, which are to be mixed in style,—Early English, with Tudor and Elizabethan! The form is quadrangular, with 150 feet frontage, and two stories in height, besides rooms in the roof. The college will be divided into two distinct departments—a training school for masters, and a middle school for students, each department having its own set of class-rooms. The building will contain altogether 150 dormitories, arranged as in Oscott College. The erection of a chapel is postponed: the buildings already contemplated will cost upwards of 10,000*l.* The walls are to be of Hamstead stone, with Bath stone dressings, as in the neighbouring church. The site, at Upper Sallay, is a gift of Mr. C. B. Addeley, M.P.—A memorial window to the late Dean of Sarum is about to be put up in Salisbury Cathedral. The subscription now amounts to 400 guineas.—At a meeting of the Plymouth Water Committee, specimens of the glass pipes for conveying the town's water were produced, but, on the report of the surveyor, they were unanimously disapproved of,—on what special ground is not stated.—The new church at Moxley, Wednesbury, is to be in the Early English style, with nave and chancel, tower and spire, and will contain 635 persons. About 3,000*l.* will be required, of which nearly 2,000*l.* have been obtained, chiefly by grants from societies. We hope the sum required will be speedily collected. Mr. Wm. Horton, of Wednesbury, is the architect, and the builder is Mr. Isaac Heighway, of Walsall.—By the Bolton Improvement Act, now unopposed, a new market will be erected, ranging from Bridge-street to Knowsley-street, and street stalls superseded.—Mr. John Howison, of French-hall, Gateshead, has been elected county bridge surveyor for Durham.—At the Silver Mine Lime Works, Lintlithgowshire, 3,700 tons of stones were recently raised in one blast. The quantity of powder used was 5 cwt.

\* This has since had attention. A Bill will probably be brought into Parliament to protect inventors.



## DESIGN FOR A CEILING OF A DWELLING HOUSE.



## DESIGN FOR A CEILING TO A DWELLING-HOUSE.

THE accompanying design for a ceiling is one of a number, made and drawn by Joseph Bass, a modeller, of Lambeth, to shew what he could do for 20*l.*, exclusive of materials. Including the materials, it would cost about 30*l.* We do not usually employ our pages for the benefit of individuals, but if, in this case, by giving publicity to his design, any good should result to him, we shall be glad of it, as he seems an ingenious man. The room should be lofty to admit of such an amount of cast work as is here designated. The size of the ceiling is 12 feet by 18 feet.

## TERRA COTTA MONUMENTAL MEMORIALS.

It would add, I think, greatly to the decency of interment, and to the comfort of relatives, if some permanent mark of each person's place of burial could be fixed, either in the place itself, or in some public building. A desire for some such record seems one of the higher instincts of humanity. It is certainly the most intelligent form of that instinct of conservation which lingers round the dead, and which is gratified by attempts, however rude, or however noxious, nay, revolting, to preserve the bodies themselves. The mausoleum, the monument, the tablet in the parish church, the

gravestone, the headstone, preserve these records, though imperfectly, and at great expense, for the rich. It should be made easy for the poor.

Surely this might be effected by means of earthenware tablets, impressed by moveable types, specially adapted for the purpose. It would still more simplify and cheapen the process if the constant and formal part of the inscription were *stereotyped*. The rest only would have to be supplied as it was wanted. The inscribed pottery of Pompeii has made thousands wonder how the ancients missed the art of printing. That pottery, and still more that of Egypt and Babylon, proves how



durably it preserves the records committed to its keeping.

The clay of the potter ministers to the earliest material wants of social and civilized man, through his cooking instinct. The press ministers to his spiritual and intellectual wants. May not the nineteenth century, an age of whose mighty inventions the mightiest is the infant art of combining and distributing, for the good of the many, the material and spiritual productions of the few, effect such a combination of the clay and the printing type as may supply these two pressing needs of the people?—the material want of wholesome sepulture, the spiritual want of preserving the name, the memory, and the resting-place of the dead.

JACOB.

The idea of a terra cotta tombstone is new in this country, and no doubt if properly glazed it would be as durable as any other material, but the great advantage, as it appears to me, is this: a great degree of elegance of form and ornamentation could be attained at comparatively little expense. What is particularly new in this project is the application of moveable type for the purpose of impressing inscriptions in the soft clay, afterwards to be rendered durable by baking, for as to impressing inscriptions on the clay and then baking them, the Babylonish bricks and cylinders testify to a considerable antiquity. It is curious, also, that the idea of the application of moveable type should follow—as in the case of printing—after the first process had been so long practised.

J. BONOMI.

#### THE BUILDING REFEREES' COURT.

In your paper of last week there was a notice of a deputation to the office of Woods on that vexed subject, the "New Metropolitan Buildings' Act," in which not only the threatened abasement of the referees was strongly objected to, but a suggestion was thrown out that the referees should sit in open court as magistrates do, and that the registrar should act as the clerk in the police courts, giving his legal advice when required, and keeping the records of the proceedings. This would greatly simplify the business, and be highly satisfactory to the public, and is a course which had long ago occurred to me as well as others.

The present system is of a piece with the act itself, complicated and unsatisfactory; and the style of correspondence adopted, and tone of proceeding, remind one of Cardinal Wolsey and his "*Ego et Rex meus*," with this difference, that the cardinal had but one king to dictate to, but here there are three. The sittings at this office always present to my mind a *tableau vivant* of the Inquisition, as represented in the plates to the History of that institution; and the costliness of the machinery—two of the board with salaries of the millenium period and two—of the *cinqe cento*, besides their satellites,—seems to be far beyond the requirements of the business, and with this formidable array and ceremony some of the cases brought before them appear like breaking a fly upon the wheel.

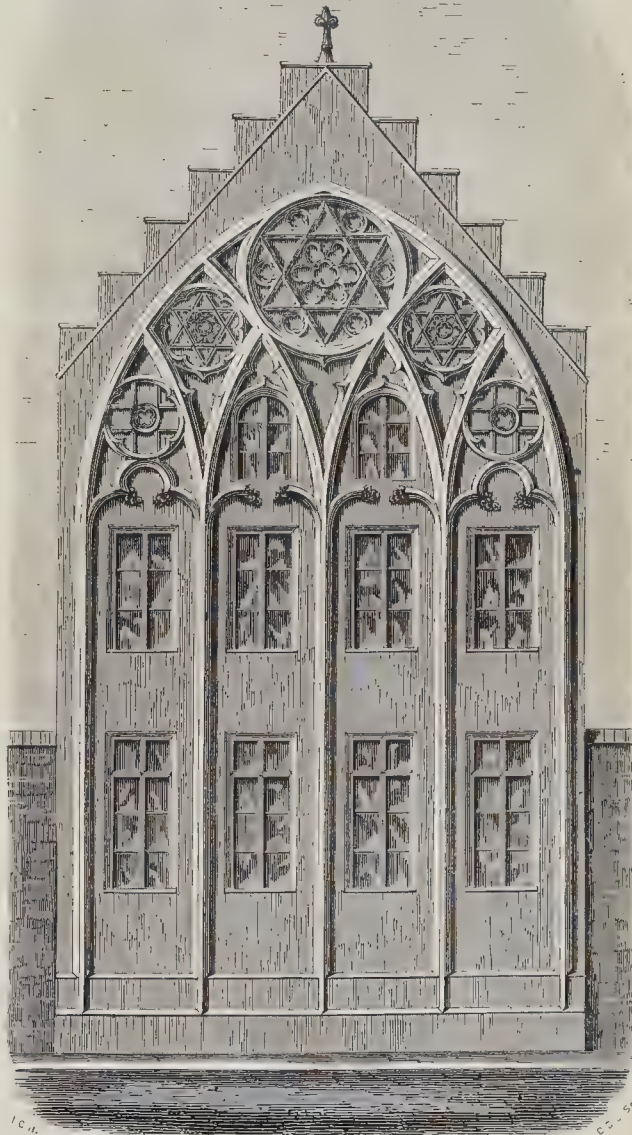
I trust this suggestion of taking the police courts as a model will not be lost sight of, but be seriously considered in framing the new act.

OLIM.

**SELFISH ART.**—It is said that Mr. Wyon, R.A., has been commissioned by the East India Company to prepare a die for a gold medal to be presented to Major Edwardes, in acknowledgment of the services rendered by that officer during the recent war in the East; that as it is intended solely for the Major, the die will be destroyed as soon as the medal is struck, so that no duplicate shall exist. We hope the latter part of this statement is incorrect, and that national collections will, at all events, be permitted to have impressions. How much more flattering to the Major it would be to put his head on the medal, and distribute it pretty extensively, than thus to misapply the process of medal die-sinking.

**EXHIBITION OF ENGRAVINGS.**—The Society of Artists at Birmingham mean to have some of their rooms set apart this year exclusively for engravings by artists trained in the Birmingham School.

#### ANCIENT HOUSE-FRONT, LOUVAIN.



#### ANCIENT HOUSE-FRONT, LOUVAIN.

THERE is great variety in the domestic architecture of Belgium, arising partly from the ancient division of the provinces, but chiefly from the diversity of building materials available in the different localities. Thus, in Flanders, where there is no stone and but little wood, brick buildings predominate; about Liege and the eastern parts of the country another character is imparted to the houses by the plentiful use of stone; whilst in Brabant and the midland parts, brick, wood, and stone are used indifferently.

Examples of stone buildings from Mechlin and Ghent have appeared in recent numbers

of THE BUILDER: we shall now give specimens of brick. The accompanying sketch is from Louvain, and we shall hereafter give one from Bruges.

These houses are built of a very fine red brick, not moulded, but cut and rubbed: many of them have the front walls tied in with irons, the heads of which are wrought sometimes into fleur-de-lis or scrolls, and at others into Arabic numerals expressing the date of the building. Scarcely any of these houses have chimney-pots, but the shaft is carried up some height above the roof, and finished with bricks and pantiles, the arrangement of which is often ingenious and picturesque.

J. G. H.



THE ROYAL ACADEMY.  
ARCHITECTURE.

THE majority of the churches exhibited are in the early English style: (1109) "District Church, Bracknell, Berks," by T. Scandrett; (1113) "Church in a Nobleman's Park," by D. J. Childs (with very erroneously placed flying buttresses); (1115) "Church at Wickham Bishops, Essex," by E. Christian (with open wood south porch); (1142) "Church of St. John the Baptist, Hartwell," by C. Vickers (consisting of nave and chancel, with double bell-cot at west end); (1284) "Meanwood Church, near Leeds," by W. Railton (though part shows the ball-flower in the groining), are amongst the number.—(1110) "A Suggestion for an Improvement in Westminster, adapted to the Nineteenth Century," by W. Papworth, is a view down King-street, rebuilt, commencing with a structure at the corner of Downing-street, similar to the Privy Council Office, and a cleverly drawn fountain at what is now the junction with Parliament-street. According to Sir John Evelyn's diary, "King Charles II. had a design to buy all King-street, and build it nobly, it being the street leading to Westminster. This might have been done for the expense of the Queen's funeral, which was 50,000*l*." This was in 1695: the cost would come out something differently now.—(1111) "Wesleyan Normal College, Horseferry-road, Westminster," by J. Wilson, does not set forth the design to much advantage.—(1118) "School of Industry for Female Orphans, about to be erected at St. John's-wood," by G. Legg, is poor in effect, but may look better when carried out, as some of the churches here will look worse. The pinnacles are too small.—This cannot be said of (1124) "Nobleman's House and Farm Buildings, now erecting in New South Wales," by T. C. Tarring, wherein the finials of gables are monstrously too large.—(126) "Design for a new Wesleyan Chapel, at York," by G. F. Jones, is Norman in style, with large wheel window in entrance front.—(1135) "A Marble Fireplace," by C. J. Richardson, was exhibited at the School of Design. It is an elaborate and able design, arranged to admit of the introduction of Parian statuettes.—(1139) "Interior of Baths, Wolverhampton, now erecting," by G. T. Robinson, is Byzantine in style and not ineffective. The same architect exhibits "The Interior of the Exchange at Wolverhampton," (1174).—(1145) "The Dining Hall, Farming Wood Hall, Northamptonshire," by T. Barry, is a nice specimen of Mr. Barry's skill in drawing, and the same and something more may be said of (1289), "Church of St. John, Radpole," by same architect.

(1164) is an outline geometrical drawing, by E. M. Barry, of "Cliefden, the seat of the Duke of Sutherland, now rebuilding from designs of C. Barry, R.A." The central portion, the only new part, has attached Ionic columns, carrying only balls, with the entablature breaking round them, and two ranges of windows in their height,—an arrangement open to objection, in spite of precedents. The wings, terraces, &c., group well.—(1184) "The Seat of E. Lambe, Esq., now erecting," by C. Barry, jun., is heavily coloured, but will make a good building. The chimneys, brought up at the angles of the central tower, and at regular intervals around the house, constitute an important feature.—(1192) "A Design for a new National Gallery for Painting and Sculpture," by Jas. Fergusson, was briefly mentioned last week. The picture galleries and schools are on the first floor of the part next Trafalgar-square, with libraries under. The sculpture galleries are on the ground floor, lighted from the roof on one side only. The picture galleries are in three lateral divisions: the centre goes up high, and is lighted by a continuous range of windows seen over the roof of the lower (side) portion: they would seem to have comparatively small extent of available wall. The building has the merit of exhibiting no wasteful expenditure of columns, and if wanting in dignity is not so in elegance. The central lantern is Corinthian, with groups of sculpture on the entablature, and is terminated by a Minerva of large size.—(1197) "St. Helen's (R.C.) Church, Westbourne-grove, North," by T. Meyer, shows an Early Decorated building, the interior of

which is apparently to have stone groined-vaulting, and fittings of more than ordinary costliness. Judging from (1282) the exterior of the same church, the lower part of spire, next the top of tower, is of metal work, and though novel in England does not promise to be satisfactory.—(1209) "The Arcades and Portico to the Central Railway Station at Newcastle-upon-Tyne," by J. Dobson, is one of the most costly screens ever erected. It is Doric in style: the central portion has a range of coupled columns carrying figures, and the whole is certainly imposing in more senses than one.—(1216) is a good bold range of "Buildings about to be erected in the City," by E. l'ANSON.—In (1217) "Design for remodeling the Façade, &c., of National Gallery," by H. B. Garling, the principal features are the removal of the turrets at end, the introduction of a range of columns along the face of the building, and the substitution of a square attic in the centre, in lieu of present dome. The effect of the drawing would have been better if the lines of the main front had been drawn parallel.

We shall continue our notice of the general exhibition next week.

ARTISTS' GENERAL BENEVOLENT  
INSTITUTION.

THE 35th anniversary festival of this institution was held on Saturday last, Sir Robert Peel in the chair, supported by Viscount Hardinge, Colonel Rawdon, and the following Royal Academicians,—Sir W. C. Ross, D. Roberts, C. Stanfield, T. Uwins, T. Webster, C. R. Cockerell, P. Hardwick, P. McDowell, and C. Barry; Associates,—R. Redgrave, T. Creswick, W. E. Frost, A. Elmore, A. Egg, and W. P. Frith; and the following patrons,—the Hon. — Hardinge, Sir E. Cust, Dr. Rice, and Mr. Fortescue, M.P. The Chairman, who was received with marked distinction, made an eloquent appeal, more especially to absent friends, and through the hoped-for help of the daily press,—that great institution or "estate," he remarked, which ever stood forward as the generous advocate of every cause connected with benevolence and charity. The period of this appeal he felt was a peculiarly appropriate one. Within the last few days there had been open all those exhibitions which presented the collective works of genius that had been accumulated during the past year. He believed there were few who knew, or ever thought, of the painful processes which had been necessary for the production of these works; what a degree of severe mental toil had been endured, what discouragement there sometimes was, on account of harsh and unfeeling criticism, and the caprices of the public taste. He believed that in the course of the present year there would be seen on the walls of the several exhibitions as many as 4,000 works of art (Sir Robert reads *THE BUILDER*), the result of the toil, and labour, and genius of the past year. Now, these were the productions of those who had been comparatively successful in the race of competition,—who had at least had sufficient health and strength to enable them to contend in that severe race; but there were behind these, in the distant background, artists out of sight, and almost out of mind, whose prospects had been clouded by accidents and disease, some of whom had left widows and orphans, with no other worldly possession but an unblemished and honourable name, and a delicacy of feeling which induced them, in many cases, to withhold a knowledge of their affliction. It was for the purpose of mitigating that suffering in such a way that delicacy of feeling should not be wounded that this institution had been established,—an institution marked, on the one hand by the greatest liberality, and on the other by the severest economy, for he found that the whole of the salaries during the past year, including commissions to collector, &c., had been but 56*l*. 16*s*. 10*d*., and the room for the meetings of the council and subscribers only 6*l*. 12*s*. Since 1814 not less than 1,200 cases had been relieved in sums amounting to 12,700*l*., and last year alone fifty-seven applicants had been relieved at a cost of 650*l*..—The receipts during dinner amounted to about 718*l*., including 100*l*. from Her Majesty, 50*l*. from Sir R. Peel, 50*l*. from the British Institution, and 20*l*. from Lady Chantrey.

## RAILWAY JOTTINGS.

One hundred and fifty extra hands have lately been taken on the Britannia Bridge works, to expedite the floating of the third great tube. On 10th June, its final transit to its permanent site is to take place. Since the completion of the tubular passage, circular windows, 4 inches in diameter, fitted with glass, and standing about 20 feet apart, have been placed along the sides.—The Rymney Iron Company have contracted to deliver in London about 12,000 tons of iron rails, at 4*l*. 19*s*. 8*d*. a ton. Take 10*s*. for carriage out, says *Herald*, and there remains under 4*l*. 10*s*., a price considered in the trade to be beneath the cost at which the rails can be made.—The Bradford branch of the Lancashire and Yorkshire line has been inspected and is about to be opened. The length is only three miles, but the works are heavy and costly, particularly the Bowling tunnel, and the bridges and retaining walls in Wakefield-road and Broomfields. The tunnel is 1,646 yards in length. The arch throughout is formed almost entirely of stone. The entrance presents a semi-circular arch in the Moorish style, and the opposite end a plain Norman arch. This tunnel is nearly straight. It has three open shafts for ventilation, and is almost entirely free from water. The shaft of greatest depth is 65 yards. The principal bridges are—one, an iron girder, weighing in iron alone 300 tons, of 50 feet span and 60 yards long, and crossing Wakefield-road; the work of Messrs. Butler and Co., of Stanning-ley: another, of stone, with elliptical arch, 28 feet span, passes under Edward-street, Bedford-street, and Croft-street, in Broomfields; being 130 yards long: a third, of some prominence, not far from the Bowling tunnel, is a timber lattice bridge, 30 feet in height, and with two spans of 80 feet each. There are several additional bridges—iron girder, bow string, and lattice bridges—crossing several of the roads and serving to connect others at various parts of the line. The rails are bridge-form, and screwed on timber laid down longitudinally. The chief contractor of the branch was Mr. William McCormick. The Bowling tunnel and cutting were completed by Mr. Angus Nicholson; heavy masonry at the entrance to the town by Mr. Frith; and station and warehousing by Mr. Robert Neil (Manchester).—The lattice viaduct on the Kilkenny and Waterford line was on Tuesday week delivered up by the contractor to the Company's engineer, and its stability tested on the withdrawal of the centring, much anxiety being manifested as to the result. On the centres being eased off, the deflection was 2½ inches. On Wednesday morning the structure had subsided ½ inch additional. In the trial of strength 72 tons, independent of persons on the engine and waggon, were laid on at rest, and then passed and re-passed at a speed of 15, 20, and 30 miles an hour. The momentary deflection, says our authority, never exceeded 6½ inches, and this, on the weight being removed, immediately sprang back 2½ inches. The final settlement remains but 3½ inches.

## Books.

*An Elementary Course of Geology, Mineralogy, and Physical Geography.* By D. T. ANSTED, M.A. Van Voorst, Paternoster-row.

SHOULD any of our readers be so far mistaken as to imagine that, as architects or engineers, they have little to do, professionally speaking, with the study of a subject such as this, the following quotation from Professor Ansted's volume will suffice to remove the impression:—

"With respect to the decomposition of stones employed for building purposes, it is greatly influenced, as well by the chemical and mechanical composition of the stone itself and by the nature of the aggregation of its component parts, as by the circumstances of exposure. The oolitic limestones will thus suffer unequal decomposition, unless the little egg-shaped particles, and the cement with which they are united, be equally coherent, and of the same chemical composition. The shelly limestones, being chiefly formed of fragments of shells, which are usually crystalline and cemented by



a calcareous paste, are also unequal in their rate of decomposition, because the crystalline parts offer the greatest resistance to the decomposing effects of the atmosphere. These shelly limestones have also, generally, a coarse laminated structure, parallel to the plane of stratification, and, like sandstones formed in the same way, they decompose rapidly when used as flags, where their plane surfaces are exposed; but if their edges only are laid bare, they will last for a very long and almost indefinite period.

Sandstones, from the mode of their formation, are very frequently laminated, and more especially when micaceous; the plates of mica being generally deposited in planes parallel to the beds. Hence, if such sandstone, or shelly laminated limestone, be placed in buildings with the planes of lamination in a vertical position, it will decompose in flakes, more or less rapidly, according to the thickness of the aminæ; whereas, if placed so that the planes of lamination are horizontal, that is, as in its natural bed, the edges only being exposed, the amount of decomposition will be comparatively immaterial. The sandstones being composed of quartzose or siliceous grains, comparatively indestructible, they are more or less durable according to the nature of the cementing substance; while, on the other hand, the limestones and magnesian limestones are durable in proportion rather to the extent in which they are crystalline; those which partake least of the crystalline character, suffering most from exposure to atmospheric influences.

The chemical action of the atmosphere produces a change in the entire matter of the limestones, and in the cementing substance of the sandstones, according to the amount of surface exposed. The mechanical action due to atmospheric causes, occasions either a removal or a disruption of the exposed particles; he former by means of powerful winds and driving rains, and the latter by the congelation of water forced into, or absorbed by, the external portions of the stone. These effects are reciprocal, chemical action rendering the stone liable to be more easily affected by mechanical action, which latter, by constantly presenting new surfaces, accelerates the disintegrating effects of the former.

On the whole, it would appear that, where there are no local reasons to the contrary, preference should be given to limestones over sandstones for most public buildings intended to be handed down to future ages; and this on account of their more general uniformity of tint, their comparatively homogeneous structure, and the facility and economy of their conversion to building purposes. Amongst the limestones, also, those which are most crystalline are to be preferred; and some of the magnesian limestones seem to offer the greatest advantages of durability, uniformity of structure, beauty of appearance, and facility of conversion; but it should be clearly understood, that many other limestones, and many sandstones, also form admirable building stones; and these are so distributed through the country, that there is now no excuse for those architects and engineers who neglect to examine carefully into the relative durability and excellence of the stone employed in any edifice about to be constructed."

The author's remarks on drainage, water supply, marble, and other subjects, also well merit the perusal, as indeed does the whole work the study, of all engaged in engineering and architectural operations. It embodies a large number of facts, illustrations, tables, and other valuable matter. As to explanatory speculations, or opinions, the author—judiciously it appears to us, although we do not undervalue their importance—very much restricts the limits of these in the present elementary work, yet, so far as he goes, we would have rather wished to have had less deference to the ideas of Lyell, eminent as he is, and more to those of other geologists of at least equal eminence. We have little other objection here to make to this excellent work of an able author, unless it be an occasional looseness of mere verbal expression,—such as, for instance, in the use of the term transparent instead of translucent, in speaking of thin leaves of gold and their green translucency. The whole work will be found to constitute a compendium not only of geology proper, but

of elementary chemistry so far, as well as of mineralogy and physical geography,—all essential branches, indeed, of one comprehensive science. Facility of reference is greatly promoted by full indices, analytical table of contents, list of numerous illustrations, &c., and there is a copious and useful glossary of scientific terms. For the guidance of students an appendix contains a variety of examination papers, with numerous leading and suggestive questions, useful in self-examination, though liable, it may be, to something like abuse (as every good thing is, and this amongst others) in cramming for the nonce.

### Miscellaneous.

**MANCHESTER SCHOOL OF DESIGN.**—The annual meeting of this institution was held on Tuesday week, in the large room of the school, Brown-street, the Mayor, Mr. John Potter, in the chair, when the report of the council was read, and the medals and other prizes were distributed. It appears from the report, that the number of pupils has increased since last year from 90 to 352; and that the school has otherwise greatly improved both in resources and in proficiency. Amongst the pupils we perceive are 15 joiners and masons, 19 architects and builders, 5 upholsterers, and 4 cabinet makers, also 30 artists, 4 glass painters, 14 carvers, 53 calico designers, 20 decorators, &c. According to the report, the past year had been one of unwonted outlay. It commenced with a debt amounting to 212*l.*, and increased by 454*l.* 12*s.* 2*d.*, for fittings, &c.; but instead of now nearly 700*l.*, the debt is no more than 372*l.*, having been reduced by donations in addition to the annual subscriptions. The report concluded by adverting to the fact that the school had now become a public institution, yet it had been held liable to municipal rates and taxes, in consequence of its now obsolete laws. The council considered it advisable that an appeal should be made against this interpretation of its constitution.

**CHESTER ARCHITECTURAL AND ARCHEOLOGICAL SOCIETY.**—The monthly meeting of this society was held on the 6th; the Chancellor of the Diocese presided. The Venerable Archdeacon Wood read a paper "On the probability that Kinderton, near Middlewich, is the Condate of the Roman Itineraries." The Rev. W. H. Massie then gave an interesting lecture on an ancient wooden bridge, which has been found buried in the silt, 17 feet deep, on the course of the river Birkett, near Wallasey Pool, near Birkenhead. Mr. Massie arrived at the inference that the bridge in question was a Roman structure, to facilitate the marching of armies across the marsh. In the course of the evening Mr. Hicklin announced that the Liverpool Architectural and Archeological Society had selected Chester as the place to be visited in their annual excursion this year, and was sure that the Chester society would make the necessary arrangements to give their friends from the Lancashire side of the Mersey a cordial welcome. Drawings of the figures on Gresford Church tower, which is undergoing repair, and of the mediæval pavement found in Feathers'-lane, Chester, were also exhibited, and gave occasion for some comments.

**WESLEYAN CHAPEL COMPETITION, YORK.** One of the thirty-nine candidates in this matter, whose design, if we understand rightly, was selected as the second best, asserts that the chosen design was not sent in till after the time appointed by advertisement for receiving the plans, viz. the 1st of February,—an extra time having been given on application to the author of it; and he asks how he and other competitors may "obtain redress from the trustees for their breach of contract?" The injustice of the proceeding, if the statement be correct, is too obvious to need pointing out, and it admits of inferences far from creditable to the committee; the competitors, however, would find it very difficult to obtain redress legally.

**HARDENING METALS.**—Mr. Wheeler, of Franklin county, Massachusetts, has taken a patent for hardening steel or iron "by immersing it below the surface of, and in, water, and then causing one or more jets to play through the body of the water, and against the metal or part thereof to be hardened."

**PROJECTED WORKS.**—Advertisements have been issued for tenders, by 8th June, for the erection of buildings for public baths and washhouses, in St. James's parish, Westminster: plans, &c., by Mr. P. P. Baly, of 14, Buckingham-street, Adelphi; by 1st June, for repewing and restoring the interior of Much Wenlock Church, Salop, as advertised; by 17th, for the several works to be done in enlarging the workhouse of the Chertsey Union, and reconstructing the drainage, on plans by Mr. John Billing, of London-street, Reading, architect; by 28th inst., for a quantity of kerb, paving stone, and granite pitching, as advertised, for the West Ham highways, Mr. R. Rake, of West Ham, surveyor; by 30th, for the works to be done in erecting an infirmary, schools, and other buildings, alterations, &c., for the Stepney guardians, Mr. Dunch, of 16, Stepney-causeway, Commercial-road, surveyor; by 30th, for granite and other materials, as advertised, for St. Giles's and St. George's, Bloomsbury, Mr. Birch, of 199, Holborn, surveyor; by 23rd, for a butt, &c., for musket ball practice, at Chatham garrison, drawings, &c., by Royal Engineer of Ordnance, Chatham Lines; by 21st, for constructing brick sewers in Figlane, &c., and at Westminster, separate tenders as advertised, for the Metropolitan Sewers Commission; by 25th, for wood carvings and other work in restoring St. Peter's Mancroft, Norwich, Mr. R. M. Phipson, of Brook-street, Ipswich, architect; by 5th June, for the erection and completion of a new workhouse for the Wortley Union, near Sheffield, plans, &c., by Messrs. Aicken and Capes, of 1, Clarence-street, Islington, architects,—one or more tenders; by 4th, for the construction of a main drain at Woolwich, Royal Ordnance Engineer, Artillery barracks, Woolwich; by 27th, for two cast-iron purifiers and other apparatus as advertised, for the Boston Gas-light and Coke Company; by 24th inst., for repairing plaster work, carving, string courses, &c., in Leominster Church; by 28th, for the construction of public sewers at Cambridge, Mr. R. R. Rowe, of 10, Downing-street, Cambridge, Surveyor; by 3rd June, for the construction of several heavy waste weirs for the Manchester Water Works, Mr. J. F. Bateman, of 46, Brown-street, Manchester, engineer; by 12th, for 2,700 tons blue Guernsey granite, and 1,600 tons Kentish or Hertford flints for Paddington Vestry authorities; by 21st inst., for 300 yards of brick drain at Landport, Mr. Joseph Craven, of Mile-end, Landport, Surveyor; and by 4th June, for a supply of curb, flint, granite, gravel, plank, &c., for the Portsea Highway Board, Landport.

**ACCIDENT BY BLASTING AT ALGIERS.**—On 4th inst., MM. Barthelon and Dussaud, contractors for conveyance of materials for the French corps of Engineers, and the hydraulic works at Algiers, sprang a mine in the quarry of Bab-el-Dued, consisting of two excavations, one charged with 2,500, and the other with 1,500 kilogrammes of powder, when a volley of stones and large blocks of rock from the interior of the mountain was hurled towards the city, and struck various persons amongst a multitude, some of the parties standing at a distance of more than 800 metres. Eight persons were killed, and many wounded. The contractors, it is said, had given due admonition to the public, but probably such an explosion was not anticipated.

**BLENHEIM PALACE.**—It is currently rumoured that this building will shortly be opened to the public as heretofore, every day except Saturday and Sunday.

**WIDE ESTIMATING.**—Tenders for the alteration of a house at Hilton, near St. Ives, Hunts; for additions to a farm-house, new stabling, &c.; Messrs. Habershon, architects:

Saint, St. Ives.....	£628
Smallbone, ditto.....	622
Twelvetrees, sen., Biggleswade.....	595
Bennet and Son, Whittlesea.....	520
Aldis, Penstanton.....	475
Burford, St. Neots.....	472
Butler.....	446
Bunting, St. Ives.....	429
Gathergood, Huntingdon.....	420
Harraat and Co., Huntingdon.....	370
Bird.....	337
Barter, St. Ives.....	315
For the enlargement of the Wesleyan Chapel, Biggleswade; Edward Twelvetrees, architect:	
Field, Biggleswade.....	£110
Twelvetrees (accepted).....	98



**BRITISH ARCHÆOLOGICAL ASSOCIATION.**—On the 8th, Mr. Pettigrew, V.P., in the chair, communications were read, amongst others, from Messrs. Barton and Bergne, relating to coins found in the Isle of Wight, resembling very closely those of our Henry III. and some other English and Scotch kings of about that time, but bearing the names of Flemish towns, and apparently coined by the princes of that nation. Mr. Barton affirms them to be good and true money, but Mr. Bergne considers they are imitations, either struck by the princes to obtain the profit of mintage, or by them or some private individual for the purpose of circulating light or base coins. From Mr. Lott, on some Roman coins found during an excavation for a drain in the upper part of Cheapside. From Mr. C. Baily, on an *ampulla* of lead now in the Museum at York, and which, he supposes, was used to contain the oil used in the Romish sacrament of extreme unction, this appearing to be the subject represented on one side of the vessel. It is of about the thirteenth century. From Mr. Purland, on a representation in the "Historic Reliques," by Mr. J. M. Williams, of one of four candelabra in the cathedral of Ghent, said to have belonged to Charles the First, but which Mr. P. considered to be of earlier workmanship; and from their height corresponding nearly with that of the tomb of Henry VII. in Westminster Abbey, and the similarity, in some respects, of their ornament to that of the tomb, he suggested, they might have been made to form part of the monument, and he strengthened his position by reference to the armorial bearings. Also from Mr. Harrison and the Rev. Mr. Massie, some further remarks on the pavement, &c., at Chester; and from Mr. C. R. Smith, on excavations at Lyme Castle, Kent.

**INSTITUTION OF CIVIL ENGINEERS.**—On the 14th instant (Mr. Cubitt, president, in the chair), the paper read was "On the Construction of the Permanent Way of Railways; with an Account of the Wrought-iron Permanent Way laid down on the Main line of the North Midland Railway," by Mr. W. H. Barlow. In the discussion which ensued, in which Messrs. Hawkshaw, Brunel, Locke, M.P., Barlow, and Glynn, took part, the relative advantages and disadvantages of the different systems of permanent way in present use were discussed; but it appeared to be a general opinion, that no one system of laying a permanent road could at present claim a great superiority over any other; and that, in reality, much more depended on the good quality of the materials used in its construction than in any particular way of laying it. The objects to be attained were—simplicity of construction, so that there should be as few parts as possible to get out of order, a perfect joint, and economy of maintenance; and though the two first of these desiderata were admitted to be obtained in a permanent way with bridge-shaped rails and longitudinal timber sleepers, it was contended that they were, to some extent, counterbalanced in a road laid in the ordinary manner, with double-headed rails and cast-iron chairs, as, in some instances, after being turned, the second table was found to be more durable than the first. It was announced from the chair, that the president's annual *conversazione* would be held on Tuesday evening, May 28th.

**THE BARROW MONUMENT.**—The ceremony of laying the first stone of the testimonial to the late Sir John Barrow was to take place at Ulverstone on the 15th. The subscriptions to the testimonial amount to upwards of 1,000*l*. The design selected by the committee is that of Mr. A. Trimen, architect. The stone tower designed by him is to be 100 feet in height, by 40 feet diameter at the base; and as the structure is to be erected on the Hill of Hoard, which rises immediately above the town of Ulverstone, the tower will serve as a sea-mark for the navigation of the dangerous bay of Morecambe.

**PROFESSIONAL GOOD FELLOWSHIP.**—Any exhibition of good feeling is a true pleasure to us, and we gladly chronicle that the Glasgow Institute of Architects entertained Mr. James Wyson, one of their body, and not unknown to our readers, at a dinner in the Globe Hotel, on Wednesday, 8th May, on the occasion of his leaving that city to return to London.

**LIVERPOOL ARCHITECTURAL SOCIETY.**—At the last meeting of the session of this society, held on Wednesday evening, last week, Mr. Charles Barber delivered an address, in the course of which he said: There cannot be a wider or more noble field of action than the study or practice of architecture. By the study I do not mean the mere imitation of times long gone, but that we should endeavour to find out the reasons why this or that was done, to embrace the same train of thinking, and the reason, as we suppose, why they did it, not looking on the past with sluggish idolatry, but to get our minds filled with the same loftiness of sentiment, catching the fervour of the original, we may build a lasting reputation for ourselves and time. The profession has many advantages, and calls for the best efforts of your minds to advance its objects. What would Greece or Rome be at this moment but for the monuments which tell of their greatness and learning?—and depend upon it, what man has done, man may again do, and it is one of the happiest features of your profession, that, in the convulsions of states and nations, which shake society to its foundation, your works will outlive the shock, and be but slightly injured by the hand of time.

**AN ARCHITECT'S SIGN-POST.**—In a town not 100 miles from Thirsk, a worthy member of the profession has rented a small space of the brick pier between the windows of the principal inn, some 3 feet by 2 feet, for a sign-board, upon which is blazoned in heraldic propriety—"Snooks, Civil Engineer, Architect, Surveyor, Estate Agent, &c., &c." Mrs. Smith, the laundress round the corner, is trying to obtain about the same quantity of space at as easy a rate as possible, as she thinks it a most desirable position for an artistic panel, showing a view of that useful engineering work so coveted by her profession, and under which will be inscribed—"MANGLING DONE HERE."

**THE BURY MECHANICS' INSTITUTION AND ATHENÆUM.**—Tenders are now being obtained for this building, which is proposed to be erected under the direction of Mr. Sydney Smirke, (not *Joshua Smerk*, as stated by our local informant a fortnight ago,) at the expense of a number of the gentlemen of that rapidly increasing and prosperous town. The Earl of Derby, Sir Robert Peel, and others are munificent contributors. The site, which was given by the nobleman above named, adjoins a somewhat extensive range of public buildings which have been erected under the same architect, for Lord Derby, comprising assembly rooms, court-house, hotel, estate office, &c.

**METROPOLITAN WATER SUPPLY.**—The bill of the Watford Spring Water Company, was presented in the Commons on Tuesday for reading a second time; but on the representation of Sir G. Grey, that the Board of Health's report was now almost ready, and of Lord Ashley, that it would develop new sources of supply, and a mode of administration five times cheaper than that proposed by the Watford scheme, the bill was thrown out by a majority of 196 to 90 votes. The bill for the Henley-on-Thames scheme was then brought forward for second reading, and was also rejected by a majority of 226 to 116.

**OPENING ST. PAUL'S.**—We have been waiting to hear what further steps would be taken to secure this desirable improvement: we trust that it will not be hastily given up. There can be no doubt that the surveyor of the City Commissioners is correct when he says in his report, "that in every particular as regards the traffic, the comfort and convenience to the metropolitan public would be largely increased by opening the western area in front of the cathedral, and widening the thoroughfares around the same." A few days ago an influential deputation waited upon the Dean and Chapter, to make a further representation to them on the subject, when we were rather surprised to find Mr. Cockerell on the side of those who would retain the railing. The result of the interview is not yet known.

**OXFORD ARCHITECTURAL SOCIETY.**—At a meeting of the above society, on Wednesday last week, Mr. Portal (the secretary) read the report, which stated that a plan proposed by the Northamptonshire Architectural Society, for forming a union of architectural societies, was under the consideration of the committee. The report went on to state that the secretaries

had lately inspected the restorations in progress at St. Matthew's Church, Great Milton, well worthy a visit on account of the curious frescoes daily laid bare; and while it was to be regretted that the length of the wall pieces obstructed the view of the windows, and that the ancient altar-stone which had been discovered in the nave was not, as at Garrington, to be restored to its proper place, still on the whole the greatest praise was due to the whole work, which was substantial and in good taste. Mr. Lygon, of Christ Church, then read paper on "Fonts." During a conversation which ensued, it transpired that in the Cathedral Church of Christ, in Oxford, there is no font,—the *alms dish*, which ordinarily stands on the altar, being used for the rite of baptism.

**THE WATER-COLOUR SOCIETY.**—A correspondent complains of the omission of the Lady members from the list of members at the beginning of the catalogue, and their classification as *Honorary* members. It cannot have been done, we suppose, without the vote of the whole body.

**THE VALUE OF VALUERS AT AN IRISH VALUATION.**—The guardians of the Larne Union, Belfast, have advertised for a "revising valuator," to value new houses, &c., and they offer ten shillings a day, including car hire! We have received several indignant letters from the local surveyors.

**THE NAILORS' STRIKE** has extended from Sedgely throughout the whole district of Bilston, Tipton, Dudley, Oldbury, Halesowen, and Stourbridge. Many thousands are out of employ. "The general feeling of all other classes," says the *Worcester Journal*, "is that the nailmakers are oppressed."

**OLD HOUSES.**—I am glad to hear you have got a house, . . . and still more, that it is an old house. I love old houses best, for the sake of the odd closets and cupboards, and good thick walls that don't let the wind blow in, and little out-of-the-way polyangular rooms, with great beams running across the ceiling, old heart of oak, that has outlasted half a score generations, and chimney-pieces with the date of the year carved above them, and huge fireplaces that warmed Englishmen before the House of Hanover came over. The most delightful associations that ever made me feel, and think, and fall a-dreaming, are excited by old buildings,—not absolute ruins, but in a state of decline. Even the clipt yew interest me, and if I found one, in any garden that should become mine, in the shape of a peacock, I should be as proud to keep his tail well spread as the man who first carved him. In truth, I am more disposed to connect myself by sympathy with the ages which are past, and by hope with those that are to come, than to vex and irritate myself by any lively interest about the existing generation.—*Soutley*.

**ROOTS CHOKING DRAINS.**—In a recent case, where some poplar and larch trees stood about 16 to 18 feet from the line of a main drain, laid through a field, it was found that in two years the drain had become choked with roots; and it is believed that in many instances where drainage has not produced those improvements in land which were anticipated, and even where hedge-rows cross or adjoin any portion of a main drain, the cause may be an obstruction of this nature. In the case quoted, however, the precaution of placing vertical pipes at the junction of each of the parallel drains with the main drain, aided greatly in pointing out the cause. The drains in this case are said to have been made of horse-shoe tiles, well laid, and fitting closely at the joints.

#### TENDERS

Sent in for restorations to Church, Towersey, Buckinghamshire, taking down South Porch and building New Tower. Mr. Cranstone, Architect.

	Tower.	Church.
Hope, Oxford .....	£470 0 0	£343 0 0
Ploswman and Luck, ditto .....	..	397 0 0
Stone, Thame .....	419 5 3	418 11 0
Holland, ditto .....	315 0 0	299 10 0
Chapman, Hadenham .....	405 0 0	230 0 0

#### MEETINGS OF SCIENTIFIC BODIES

To be held during the ensuing week.

TUESDAY, May 21.—Institution of Civil Engineers, 8 p.m.

WEDNESDAY, May 22.—Society of Arts, 8 p.m.











# The Builder.

No. CCCLXXXI.

SATURDAY, MAY 25, 1850.

**T**HE committee appointed to examine the plans for the building required for the great Exhibition of the Industry of all Nations, submitted in reply to the commissioners' advertisement, have had a difficult task, and have worked zealously to get through it,—which, by the way, is more than can be said for some of the committees connected with the undertaking, who appear to be fast asleep and not even dreaming. Of these, however anon. The building committee—which we may remind our readers comprises three leading architects, Mr. Barry, Mr. Cockerell, and Mr. Donaldson; and three leading engineers, Mr. Brunel, Mr. W. Cubitt, and Mr. Stephenson—have met perhaps twenty times, and are now about to publish their report. We shall not be suspected of desire to say any thing personally offensive in the least degree to any of these gentlemen: to be forced to do so would pain us much: nor will it be thought that we have a wish to assist those who are trying to raise a feeling opposed to the success of the great undertaking. We have already so fully expressed our strong conviction of the good results which may be expected to follow from the Exhibition, that this is not likely. Our very anxiety, however, to see the scheme efficiently carried out, will lead us to point out such errors in the proceedings as seem objectionable and calculated to injure the cause; and we must not be deterred by any personal feelings from commenting on them, with the view of obtaining a reconsideration of them, or of preventing other mistakes. The expenditure, if the statements forwarded to us be correct, has been enormous, especially as compared with the results up to this time. The finances should be dealt with by the committee most carefully. To secure efficiency and do justice to the cause, there should be no stint; but all useless expenditure must be scrupulously eschewed. But what we have to say at the present time relates to the proceedings of the Building Committee, which seem calculated to cause dissatisfaction.

The committee have selected, from the 240 plans submitted to them, some sixty, as supplying useful hints, and have named their authors: of these they have distinguished a smaller number as more particularly entitled to commendation. The one plan from which the most advantage has been derived is, it appears, the work of a young architect residing in Islington,—up to this time, as we are told, unknown.

Founded on these, the Committee have themselves prepared a plan, which will be published, together with some (possible) elevations, and then tenders will be asked for, to be accompanied by such suggestions for improvement on the published scheme as contractors may think fit to make. Something is said of allowing scope for those who put up different portions of the building, to show their own taste and skill in the way of decoration.

We may take upon ourselves to hint that, according to the committee's plan, the whole extent of the building, 2,000 and odd feet in length!

will be open; that it will be formed into three main divisions (with side branches) by iron (water-pipe) columns, the middle aisle being the highest, and that its great and startling feature—a novelty in construction—will be a central dome of enormous diameter. The side walls will be comparatively low: the clumps of trees included within the area will be made available for refreshment places,—first, second, and third class.

For the examination of the designs and preparation of this plan, the first step taken by the committee was obtaining the services of Mr. Digby Wyatt, the secretary of the executive committee, an excellent draughtsman and ornamentist, but who does not profess, so far as we know, any practical experience as an architect. For this reason, therefore, we suppose, a young engineer, Mr. Wild, was associated with him at 500*l.* per annum, and if the committee had stopped here we should, perhaps, have had little to say upon the subject; but to these two gentlemen they have now added Mr. Owen Jones, at another 500*l.* per annum, making, with Mr. Wyatt's 700*l.*, the sum of 1,700*l.* per annum. Of the amount, however, we would say but little, if it were to be wisely spent. Mr. Jones is an able man in his department, and deserved, what he has received, the applause of the public for his very fine work on the Alhambra; but why he, of all men in the profession, should be appointed to see this building carried out, unless it be to show, on Government authority, that architects need know nothing of construction, and that building is not their province, we are unable to divine. We shall be truly glad if we find ourselves able to take a different view of this matter when the report of the committee is published.

The plans are to be exhibited in the beginning of next month at the Institution of Civil Engineers.

Nothing has yet been said about rewarding the authors of the selected designs, but we trust the justice of this will not be overlooked.

We are glad to find that the working classes in various parts of the country are moving in aid of the exhibition. At Blackburn, the workpeople in various mills have handed in upwards of 28*l.* At Bolton, as already mentioned by us, a separate subscription fund is established, called "The Operative Fund," for assisting artisans in perfecting objects for exhibition. At Bradford (Yorkshire), money-clubs have been established, for the purpose of providing funds to visit the Exhibition. So also at Bridport, Brompton, Northampton, &c. At Edinburgh, the trades are reported to have declared their intention to raise 10,000 sixpences from working men towards the general fund.\* At Southampton, nearly 40*l.* were subscribed by workmen in two days towards the general fund. The Mayor states that, independent of the general fund, an Exhibition Travelling Fund is established, by which, in contributions of one penny a-week, means will be raised to enable the workmen to visit London during the Exhibition. So also at Worthing. Mr. Thos. Cubitt's men at Thames Bank have subscribed a considerable sum, and a lecture was delivered before them on Thursday evening last, ex-

\* The provisional committee there say in their address,—  
"Since civilization had existence, this will be the most extraordinary exhibition of 'Labour's Produce' ever collected at one time and place, and, if duly appreciated by the people, it may be in their hands an extraordinary means of self and social improvement. Its tendency to elevate the mind, and develop the latent powers of ingenuity, must induce men to stamp a value on the results of labour, and in due time enforce a more just remuneration to the labourer. Industry, and the true interests of industry, have been too long depressed and held in abeyance to mischievous and degrading pursuits."

planatory of the objects and advantages of the undertaking.

In London very little is known of the movements of parties likely to exhibit: apathy, or fear of informing others, has prevented parties sending an intimation of the space they will probably require. It is very important that definite information on this head should reach the central committee as speedily as possible. It would be useful if the various trades would each arrange to meet and talk the matter over; but feelings of jealousy would, perhaps, make this difficult. It is important that each branch of industry should be well represented in the Exhibition, and means must be devised to secure this. Inventions and improvements connected with the construction, fitting up, and decoration of buildings, should occupy no inconsiderable area in the proposed Exhibition, and should form a most instructive and interesting portion of it. We shall be glad to assist in insuring this, by any means that may seem to promise success.

Some time ago we advocated the creation of an "order of merit," and the suggestion was warmly taken up by several of our contemporaries. This would seem the moment of all others for such an institution, in connection with the forthcoming exhibition, and we again throw out the suggestion, and very respectfully recommend it for the consideration of his Royal Highness Prince Albert.

## ON THE CONSTRUCTION OF HOUSES FOR THE PREVENTION OF FIRES.

It is matter of surprise, notwithstanding the serious losses sustained every year by fire, that there has been so little attention paid to devising some means by which such, in a great measure, might be prevented. True, on sundry occasions, when the loss has been great and the fire of alarming extent, we hear the murmurings, as it were, of a forthcoming effort; but these die prematurely away, and, save here and there some faint indications of interest taken in the matter, the determination to do something is strangled in its very birth, and in a short time all is quiet again. As we, who now dwell in what we are pleased to term an enlightened age, look back with astonishment at the rude structural arrangements of our forefathers, and perceive clearly the cause of such calamitous devastations as befell them,—so in like manner, we take it, will our descendants look back on our present plans, and see the cause of so many serious losses by fire.

We are certainly entitled to express some degree of astonishment that so little has been done in this matter. With one or two solitary exceptions, very few systematic plans have been promulgated. A brief inquiry into the philosophy of cause and effect would, we opine, do much to clear the subject of its difficulty. We could then perceive that where we persist in carrying out plans in spite of all prudential reasons and in defiance of all natural laws, we have no right to expect immunity from danger, or to dread the punishment when we have broken the law. In many of our domestic and other structures, we see arrangements that are positively inducive of danger,—placed there, as it were, to favour the chance of fire, to assist, to help it in its progress, if, perchance, it should break out. To point out these defective arrangements, how to remedy them, and to give suggestions of a practical nature, useful in constructing fire-proof, or partly fire-proof buildings in a simple and inexpensive manner, is the object of our present article.

In the consideration of the subject, we shall treat, first, of private dwellings, fireplaces, flues, &c.; secondly, public buildings, modes of heating; and, thirdly, commercial houses and manufactories.

If, in all cases of fire in private dwellings, houses, rigid examinations were entered into, with a view to ascertain the causes, we are of opinion that nine out of ten would be found



to have originated at or about the fireplaces. Nothing can exceed the carelessness with which these essential parts of domestic buildings are constructed. Builders are doubtless compelled to trust greatly to their workmen; nevertheless, if it were made a matter of some importance with masters to see that all preventive measures were carried out in such cases, much good would undoubtedly result from the practice. We will now very briefly point out the most defective arrangements too often adopted or allowed to be carried into effect, and what may be considered as simple and effective preventive measures, remedying such.

And, first, as to the placing of the grate. Within these few years, register grates and others of a similar construction, have been much used. Perhaps the reason (independent of their smoke-curative powers), which has caused them to be so largely adopted, is the facility for fitting up which they present. In the old-fashioned grate, the whole nearly of the ironwork rested upon brickwork; thus necessitating the employment of a workman to set it; on the contrary, with a register grate, all that is to be done is to measure the orifice of the fireplace, procure a grate, and the servant maid, for that matter, may put it in its place. But when a grate is inserted in its place, a large empty space or vacuity is left invariably behind it. The soot falls into this, and continues to increase in quantity till it reach the part of the grate that is hottest (often red hot); ignition takes place, the fire may smoulder on for days, heating and igniting the combustibles that may be near the fireplace, till at last it gains such a degree of intensity that it acquires the mastery and bursts into flame, and all is mystery and conjecture as to the cause of the alarming fire. It may be said, that the back part of grates are filled in with fire-brick, so that the heat cannot be very great. In some instances this is the case, but it is the exception, not the rule. Moreover, were it so, the degree of heat even then arrived at would be dangerous. It is now matter of notoriety, that soot and easily combustible materials do not require an intense heat to ignite them. They have more or less a tendency to spontaneous combustion—this is increased by the temperature being raised. Much knowledge has yet to be acquired relative to the chemical affinities of various bodies, with reference to their liability to combustion. From much experience in this matter, we are inclined to think that a less degree of heat than is generally supposed (certainly far below what is called "red heat") is required to set soot and such combustibles on fire. Thus charcoal, for instance, ignites with facility at a temperature of 280°,—a degree of heat not a great deal above that of boiling water. The spaces behind grates are often filled up with combustible rubbish,—shavings, cinders, ashes, or in fact any vile conglomeration of materials that can be obtained most readily. We quote an instance which might be amusing, were it not melancholy, as indicative of the gross carelessness of parties on such occasions. We were called to a raging fire at the back of a register grate on one occasion, when, upon removing the grate, it was discovered that the whole vacuity behind was filled up with several bushels of simple undiluted coals. Upon inquiry it turned out that the bricklayer, having been directed to the dust-bin for rubbish, and finding it empty, had directed his Pat to basket away from the coal cellar! Parties may say that such culpable negligence is occasioned by the workmen. Very true! But so long as the present arrangements are so universally adopted so long will the reputation of the master builder and the safety of the building be at the mercy of the careless workman. We hold, however, that matters should be so arranged that the workmen will not have it in their power to endanger the safety of the building on which they may be employed. "If a thing is worth doing at all, it is worth doing well," and we conceive that it is matter of importance to plan the construction of fireplaces with as much regard to safety as any other part of the structure. The many modes of obviating the danger from the source we have pointed out will at once occur to the reader. If register grates are to be used, we see no occasion to have the space of the fireplace so large. No advantage is to be gained from

having a large vacuity behind the grate; on the contrary, positively much danger. What we would consider to be a business-like mode of procedure in the setting of modern grates would be the following:—Let the fireplace be made of dimensions to suit the size of grate proportioned to the dimensions of the room in which it is to be placed. Fill up the back part with solid (not hollow) brickwork, the angles of which are to be an exact copy of those of the back of the grate. At the proper height build in all the empty space of chimney flue, leaving an aperture, which should be right above that placed at the top of the grate; so that the only communication to the flue above will be through these apertures. The size of recess in which the grate is to stand, should manifestly be equal to the depth of the grate, calculating from the front face plate to the back; so that when inserted in its place, the back and angular sides will be in close contact with brickwork behind. After thus fixed, let all the interstices communicating with any portion of the grate and the chimney-flue be carefully filled up with fire-proof cement, so that falling soot must of necessity go direct into the fireplace. We feel convinced that we have only to point out these suggestions to enable the reader to see the value of the advantages to be derived from them.

Another fruitful source of mischief is the defective laying of the hearthstone. Wide interstices are often left communicating with the spaces below; and shavings, sawdust, &c., are often put beneath: these often ignite, from the heat of the stone above, or by particles of burning soot or other material falling through the interstices. A well-laid bed of mortar should be made for the stone to lie on, or a plate of iron should be placed beneath it, the interstices being carefully closed up with fire-proof cement; the part immediately below the grate being particularly attended to. Grids for retaining the ashes and red-hot cinders from the fire are useful, as tending to keep the hearthstone cool.

Wood should never be used in the construction of fireplaces. Beams of wood are often placed in close contiguity with fireplaces, and are the cause of very many destructive fires. Iron, in all such cases, should be substituted for wood: the small additional cost would be amply repaid by the increased security from fire. In building about the fireplaces and flues, the whole should be of solid brickwork: there is a practice which obtains too often amongst careless workmen of making in brickwork fair external joints, while all behind is left hollow: this should be carefully looked to and prevented. "The hollows get filled with soot; and when a fire takes place in an adjacent flue, the sooty chinks form a train which sets the building on fire." In setting fireplaces, the great desideratum is to have solid brick settings,—in no case having hollow places. Wooden beams, rafters, girders, &c., should never be allowed to pass near the flues, much less be allowed to protrude therein. The inside of the flues should be made smooth as possible, and the interstices between the niches carefully filled up with fire-clay or cement. "Firing from alterations in flues," says Mr. Beaumont, "and additional flues erected in old buildings, are very common. The workmen must be, of necessity, somewhat in the dark as to the precise layings of adjacent timber; but the indifference with which they disregard the contiguity of timber which they see, or know of, is frequently remarkable. Additional flues, to communicate with the kitchen flue, are continually required for hot-plates, boilers, and ovens, and a slant, of 6 feet or 8 feet in length, generally forms the connection with the kitchen flue; but to make the projection as little unsightly as may be, as well as to get a support for the work, it is common to cut a chase in the wall: the bond timber, in doing this, is frequently laid bare; but many workmen are so culpable as to make this exposed timber one side of their flue, or if they daub over it a bit of tile or slate it is deemed an ample sacrifice to prudence. But fires in these furnaces, and in the short flues from them, are very powerful: they are sure to fire adjacent woodwork, unless a sufficiency of brickwork intervene."

The reader will perceive from the tenor of our remarks that the points to be aimed at in the construction of fireplaces and flues are, the

complete isolation of the parts used for containing the fuel, and leading away smoke, flame, &c., from the surrounding woodwork; the using of iron in place of wood, when required; the doing away with hollow spaces; and the placing of the aperture of the grate with that of the flue in such a way as to compel all descending soot to fall into the grate alone. If these points are attended to, no danger need be apprehended from this too often fruitful source of destruction.

#### ROYAL ACADEMY.\*

In the middle room, Messrs. Egg, Elmore, Frith, and Ward, who may be looked upon in connection, from their having progressed simultaneously, as well as from their class of subjects, hold deservedly prominent positions. (292) "Peter the Great sees Catherine, his future Empress, for the first time," A. Egg, A. The composition of this picture is very original, and strikes one by its un-English appearance. The beautiful painting and careless pose of the two martial figures to whom Catherine tends her *vivandière* ware, and the voluptuous aristocratic air of the heroine, are inimitable. Peter, admirable in technical attributes, is somewhat too juvenescent, but looks a hero.

The (312) "Griselda" of A. Elmore, A., is not equal to his "Religious Controversy" of last year; but the superlative charms of the patient Griselda, the careful execution and nice colour, constitute it not likely to detract from his good name.

(332) "Sancho tells a Tale to the Duke and Duchess, to prove that Don Quixote is at the Bottom of the Table," W. P. Frith. Mr. Leslie has so completely appropriated these immortal characters, that anything differing from his conception appears unlike the author's description. The Don here is a caricature, and Sancho wants individuality: the Duke is a genteel, quiet, unobtrusive personage, and the Duchess has not the appearance of being able to relish a joke,—formal and cold cold as her exquisitely painted and silvery drapery. The ladies in waiting are the most successful of all the *dramatis personæ*. His other contribution is immeasurably superior to this: (543), in the west room, the 1st scene, 3rd act, of Goldsmith's "Good-natured Man,"—"Mr. Honeywood introduces the bailiffs to Miss Rickland as his friends,"—wherein the precise and elegant execution signaling the artist, is combined with more power and force of pronunciation than usual.

Mr. E. M. Ward, whose subjects, so judiciously selected as they are, have ever a prestige with them, has brought his mind to bear upon the historical incident (350), "James II., in his palace of Whitehall, receiving the news of the landing of the Prince of Orange, in 1688," and has produced a picture of national interest and importance. The various faithful portrayals of the chief lions of the time, and the adherence to costume and depiction of things as they were, are secondary to the artistic embodiment of the story. The imbecility of James, and, indeed, the general expressions of the courtiers, are admirable. We are glad to learn that this work has been purchased for the Art-Union of London.

(233) "The Marquis having chosen patient Griselda for his wife, causes the Court ladies to dress her in her father's cottage," R. Redgrave, A. Careful, well-drawn, and full of feeling. This also has been purchased for the Art-Union.

The "Andromeda" (304) of W. E. Frost, A., undeniably excellent in many respects, is manipulated to weakness, and amenable to the comments already applied to him in his chief work.

(342) "Scene from the 'Tempest,'" F. Stone. A pretty Miranda and as pretty a Ferdinand. Prospero "woody;" the background by no means so. (135, east room), "The Gardener's Daughter," leaves a much more favourable impression.

(376) "Francisco Novello di Carrara, and the Lady Taddea, escape from the emissaries of Galeazzo Visconti, who are in pursuit of them," and (503), "A Dream of Venice," to which a quotation from "Sansovino" is ap-

\* Continued from p. 235, ante.



pended, have afforded Mr. J. C. Hook admirable opportunity of revelling in his refined love of gorgeous colour, and exhibits an advance. We look upon Mr. Hook as one of the most promising painters of our school, and these elegant productions (perhaps a *little too elegant*) help to confirm our opinion. With careful gleanings from Giorgione and others as eminent, and an appreciation of what is good amongst modern masters, he has formed a most agreeable and distinguishing "style."

Mr. Poole has as usual produced something startling: his power over material was never better exemplified than in (389), "The Messenger announcing to Job the Irruption of the Sabeans, and the Slaughter of the Servants." The singular gloom that pervades this, supporting the luminous quality of the intensely bright draperies, the fine figure of the messenger, who in his unaffected *pose* keeps his place quite marvellously, and the effect of light and colour, excite wonder and admiration. No picture in the collection exhibits more power or higher intention.

(395) "Crossing the Brook," J. Linnell. An essentially English landscape, and as essentially a Linnell, with all his fine characteristics; distance painted as none other can paint it, and all faithfully transcribed from pure nature, in a manner proverbially free and true.

#### PICTURES BOUGHT BY ART-UNION OF LONDON.

THE following is a list of the principal pictures selected by the Art-Union of London prizeholders up to this date:—"James II. in his Palace at Whitehall," E. M. Ward, A.R.A., (from R.A.); "Griselda," &c., Redgrave, A.R.A. (R.A.), 231*l.*; "Porto Taxisio, Gulf of Spezia," G. E. Hering (B.I.), 150*l.*; "Peter denying Christ," J. Hollins, A.R.A. (R.A.), 150*l.*; "San Pietro, near Verona," J. D. Harding (R.A.), 100*l.*; "View of Ben Croachan," Copley Fielding (W. C. S.), 84*l.*; "The Odd Trick," T. Clater (S. B. A.), 70*l.*; "A Storm clearing off," A. W. Williams (N. I.), 70*l.*; "Waterfall near Haeg," W. West (S. B. A.), 80*l.*; "A Scene during the Invasion of Italy by Charles VIII.," F. R. Pickersgill, A.R.A. (R.A.), 70*l.*; "The Sun Dismissing a Mist," H. P. Parker (N. I.), 60*l.*; "Here's his Health in Water," R. R. M'lan (N. I.), 50*l.*; "A Gipsy Family," W. Shayer (S. B. A.), 50*l.*; "View from the Heights of Abraham, Matlock," J. Tennant (S. B. A.), 50*l.*; "Going to Service," J. H. Mole (N. W. C. S.), 75*l.*; "Hawkers of Relics," &c., James Godwin (B. I.), 53*l.* 3*s.*; "The Country Inn," W. Shayer (S. B. A.), 52*l.* 10*s.*; "Ben Nevis from Loch Eil," W. C. Smith (W. C. S.), 52*l.* 10*s.*; "Dieppe, Coast of Normandy," T. L. Rowbotham (N. W. C. S.), 40*l.*; "Autumn Scene in Wales," H. J. Bodington (R.A.), 40*l.*; "Piazzetta de San Marco," J. Holland (B. I.), 40*l.*; "On the Sledder," A. Clint (S. B. A.), 40*l.*; "Kirby Odsale and Valley of the Lune," H. Jutsum (B. I.), 40*l.*; "Peveril Castle, Derbyshire," J. Tennant (S. B. A.), 52*l.* 10*s.*; "From Rogers's Pleasures of Memory," H. Mapleston (N. W. C. S.), 25*l.*; "Mount Bay, Cornwall," W. Yarnold (R.A.), 25*l.*; "The Burning Glass," W. Hemsley (N. I.), 25*l.*; "A Summer Morning on the Coast," F. R. Clater (S. B. A.), 25*l.*; "A Dutch Madonna," C. Brocky (B. I.), 25*l.*; "From the 'Library of Useful Knowledge,'" G. H. Laporte (N. W. C. S.), 20*l.*; "A Summer's Evening," G. A. Williams (N. I.), 20*l.*; "A Mountain Stream," I. Bright (R.A.), 21*l.*; "Scene in a North Welsh Valley," J. Wilson, jun. (S. B. A.), 70*l.*; "Blackberries," W. Hunt (W. C. S.), 18*l.* 8*s.*; "Wreck on the Coast of North Wales," C. Bentley (W. C. S.), 21*l.*, &c.

THE PORTSMOUTH STATUES.—The statues of the Duke of Wellington and Lord Viscount Nelson, which have been sculptured in London by Mr. Milligan for Lord Frederick Fitzalan, have arrived at Portsmouth. The statues are a little larger than life, standing about 7 feet high. The pedestals are square, of Purbeck stone. The tasteless mistake has been made of placing the Duke's foot on the Atlantic Cock. This should be altered forthwith.

#### MULLION: BITTON CHURCH, GLOUCESTER.

Will you kindly allow me a corner in your valuable and interesting periodical for an architectural note and query?

Can any of your readers name a locality or date of a mullion moulded in this way? The



fillets, instead of being parallel with the face of the wall, are cut square with the chamfer of the mullion. This form of mullion exists in two three-light perpendicular windows, on the south side of Bitton Church, county of Gloucester. The weather label is curved on the top; the terminations are cut into a single leaf foliage. The work is not insertions, nor restorations, for all the jamb-stones are tailed into and accord with the range work of the wall.

Between these two windows there is a Norman doorway ("closed 1822") of an older building; and, on the same side of the church, there is another three-light window, which, to hasty observers, is exactly like its next neighbour; but the fillets in that are wrought in the usual way, the top of the weather label is ogeed, and the terminations ("kneelers," as they are called in Gloucester) are square returns. In the "eyes" of this last window are remains of flower-pattern glass of the age of Edward IV. or Henry VI.'s latter years.

I hope you will oblige me by thus advertising this singular mullion.

H. T. ELLACOMBE.

#### ERECTION OF CLUB DWELLINGS.

MANY of the suggestions for club dwellings for the working classes, proposed in THE BUILDER so long ago as 18th April, 1846, have been adopted in model lodging-houses that have since been erected, as for instance, a separate chamber for each individual, dining and coffee-rooms, and a library; but as others of the recommendations seem to have been overlooked, it may be of use to recal them to the attention of your readers.

In that communication it was proposed that the roof should be "flat, for recreation in fine weather." Operatives, as masons and bricklayers, whose work is out of doors, would, it is true, after a hard day's labour, be disposed to sit quietly down in a comfortable room, yet men of in-door callings, bookbinders and printers for example, would enjoy an hour's recreation in the open air, though it were but on a terraced roof: one of 100 feet in length would suffice for healthful exercise at bowls or nine pins, and fancy can figure the terrace surrounded with pots of sweet gay flowers, especially where the dwellings below were for married persons. In a moral point of view it seems a desideratum to afford means of diversion at home, thus to wean the working man from the gin or beer-shop. Another important use for a flat roof was indicated: it "would afford superior play-ground for children than—now their only one—the street, and much juvenile depravity would thus be avoided."

Another of the recommendations not yet adopted is that of a small infirmary in connection with a self-supporting dispensary. The infirmary would be eminently advantageous in cases of contagious disorders: self-supporting dispensaries are just coming into general estimation,—and, indeed, they merit it. An institution of this nature, lately established at Hampstead, has been attended with most gratifying results. The working classes, when in health and full work, contribute a small weekly sum: for this, without further charge, in cases of illness, they receive the best medical advice the place affords, and unsophisticated medicines. In checking maladies the dispensary works admirably; for, there being nothing to pay, it is resorted to on the first slight symptom of disease, and, by the prompt administration of proper remedies, many a long confinement to a bed of sickness has been prevented. In the worst time of cholera, many hundreds cases of the pre-

monitory symptoms of it were treated with success. Out of nearly 12,000 inhabitants, there were only eight deaths from this dread disease, and some of these were importations from town.

The proposal of a "drying room for wet apparel and shoes" should not be overlooked, for many are the maladies which have been brought on by sitting down in wet clothing, by drying it in sleeping rooms, or by putting it on still wet in the morning. Count Rumford, nearly sixty years ago, had in his house a drying chamber, through which a current of hot air constantly passed; and lately Mr. Acland has caused those farm labourers that he boards to change at meal times their working smock frocks for clean ones, and finds the regulation productive of much good order and general habits of cleanliness.

In model lodging-houses, an approximation is making by degrees to the club kitchens proposed. In a late building, there is an established cook, from whom dressed provisions can be purchased; but this arrangement does not give the benefit of economical management to the inmates, nor yet the advantages resulting from the purchase of provisions in large quantities. While model lodging-houses are novelties, and supervised by societies anxious to insure their success, the cook will doubtless supply good provisions at a reasonable charge; but after a time it is to be feared that the model kitchen will become like most other cook-shops; the articles supplied will be of as low priced quality as the customers will tolerate, and the charges for them the highest likely to be submitted to.

In the communication referred to, it was observed that "buildings on the same general plan might be constructed for single women; although as their earnings are comparatively very small, the accommodations to be provided would be necessarily on a smaller scale. In this case also, the reading-room would become a work-room for such of the inmates as might be sempstresses: their minds and morals, might, it is confidently hoped, be greatly improved, were some one (perhaps some benevolent visiting lady) to read aloud during the weary hours they were labouring at their needle. In truth, to persons conversant with the hardships females of this class endure, and the temptations to which they are subjected, it may seem that cheap respectable lodgings for women and girls are more required than for men."

It would be real benevolence were architects to bestow time and skill in contriving lodgings that could be afforded to females at a *very low* rent. At present many much-enduring women have to pay two shillings a-week, or more, for a miserable unfurnished room, but from poverty are obliged to share their bed with some other woman, who pays half the rent and half the cost of candles and fuel. It would be desirable therefore that, if possible, lodgings should be furnished for females at not more than twopence a-night, the use of a work-room well warmed and lighted included in that sum, as also the privilege of obtaining food from a general kitchen, and the occasional enjoyment of baths, washhouses, &c.

Needlewomen and others obtaining but a bare livelihood by their utmost exertions, have rarely time to spare for cooking food; their diet, consequently, is often bread alone, with an occasional treat of cheese. Were a general club kitchen established, more healthy fare might be provided in it at even less cost than the bread and cheese is obtained at. This is no visionary statement, it is founded on facts. Meat soup has been furnished this winter, of excellent quality, at a penny a pint, which covered all expenses for its preparation; and this, it must be remembered, although the meat and other ingredients of the soup were purchased at high retail prices, and the cooking rather extravagantly paid for. Mr. Acland, in the "Journal of the English Agricultural Society," gives the receipt for a much cheaper and highly-nourishing soup. It is prepared with meat and vegetables, thickened with sago, and costs him, labour and fuel included, scarcely more than one halfpenny a quart, at which price he provides it to his farm labourers. Wholesome bread might be made in the establishment at a much lower cost than poor women can purchase bakers' bread for: tea, coffee, cocoa, could be made in large quan-

\* This has also been adopted in the building for St. Martin's Northern schools, Long Acre, illustrated by us some time ago.



ities, all of them unadulterated, for perhaps half the price the lower orders now pay for these beverages. The earnings of many women amount to no more than sixpence a-day: luxuries of diet to such persons seem out of question, yet, by an able, thrifty cook, many a palatable nourishing stew might be provided at a price which could be afforded out of even that sixpence a-day.

An establishment of this nature should neither be, nor bear the semblance of a *charitable* institution: on the contrary, in all its parts, it should be calculated to encourage self-respect, and self-respect is a never failing consequence, where poor persons are conscious that they are living honestly on the fruits of their own labour. A further encouragement to this good feeling, would arise from such arrangements of the building as would contribute to decent and cleanly habits. It is on this account that in the dormitory each individual should have her own *enclosed* bed place. This may seem extravagant, but it need not really add much to the first cost of the building.

A lodging house of this description would need of course a supervising head; the *landlady* she might be termed. This person would have to enforce desirable regulations, as well as to decide in each case to the admission of lodgers. Lodgers, on entering, might be required in some way to testify their acquiescence in the rules prescribed. It might be amongst other regulations, that no spirits or other strong drinks should ever be indulged in, no foul language of any kind allowed, a fixed time for re-entering the house of evenings rigorously enforced, with the exception, however, of cases where the landlady might see good reason for according a previous special permission to out-stay that hour; a certain degree of neatness and cleanliness of person and apparel required, and the assembling of all lodgers for short prayers morning and evening.

The realization of these proposed cheap lodging-houses, depends essentially on architectural skill in devising plans for them, and therefore seems no unworthy subject for the pages of *THE BUILDER*; and it may be added that thought and talent, perhaps beyond that required to devise a palace, must necessarily come forth when the question is to provide a building with the comforts above specified for so small a sum per head as fourteen-pence a week.

M. B.

#### DISFIGUREMENT OF BUILDINGS.

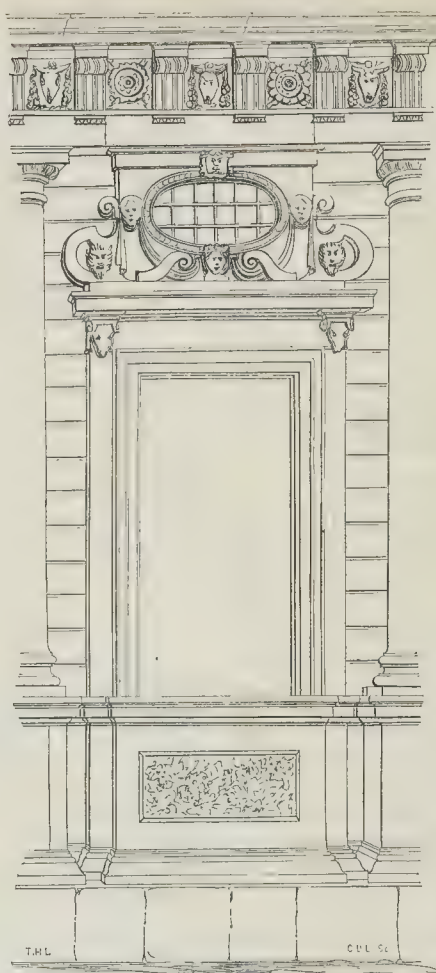
THE ROYAL ACADEMY.

A CORRESPONDENT points attention to the disfigurement of the new church at the north end of Westbourne-terrace, by an odious zinc chimney carried from the vestry to the main building. While the east end of the National Gallery and Royal Academy of Fine Arts remains so outrageously deformed and disfigured, as it now is, by a zinc pipe and accompaniments, churchwardens any where may justify themselves without difficulty. We pointed out this caricature at the Royal Academy long ago, and our objection, made in good temper, was echoed by every newspaper in London. But there still stands the obnoxious steam-boat funnel, at the foot of which poor Minerva sits sorrowful and ashamed.

If our accomplished friends Barry, Cockerell, Hardwick, and Smirke, under whose direction, as the architect-academicians, the public, of course, suppose the monstrosity was erected, really say they cannot cure the smoky chimney it represents, by any other means, perhaps the council will give us a chance, and simply for the sake of the academy's reputation, we will have it done, and it shall cost them nothing!

*The Duke of York's Column, Waterloo-place.*—At the inquest on the body of the unfortunate individual who precipitated himself from the top of the Duke of York's Column a short time ago, a hope was expressed that a cage-work of iron would be put over the top, as at the Monument in the city. We grieve to find that this has been listened to: the column is already ugly enough without being further disfigured; and there is no sufficient ground to justify the step. We might just as well put a grating over the Thames, and allow no man to use a razor because one destroyed himself when shaving.

#### WINDOW AT MILAN.



#### WINDOW AT MILAN.

SOME of our readers may get a hint for street architecture from the accompanying engraving of a window at Milan. It is from a sketch by Mr. Lewis.

#### NEW STYLE IN ARCHITECTURE.

THE question, whether we are to invent a new style, or content ourselves with making servile copies of ancient ones, has of late occupied much of your paper; not more so, however, than the importance of the subject deserves. Having heard the advocates of both sides, their statements have only confirmed the view which I had previously formed, that it is hopeless to attempt the invention of a new style; and that it is foolish to tie ourselves down to wholesale copying.

There is not, I believe, a single instance in the past history of our art, of any nation inventing a style of architecture after a national one had been once established; and the reason is obvious—human nature is always the same nature: men are the creatures of habit in all ages of the world, and there never was a truer saying than that “necessity is the mother of invention.” It has certainly given birth to all architectural styles.

A young nation in its growth has rising

wants, which, year after year, little by little, will be supplied. Those called on to furnish this supply will not task their ingenuity, so long as their memory will furnish the precedent. In a colonized nation the reminiscences of the style of their mother land will, for a long time, bias the first attempts; but new materials, fresh elements of construction, and other wants, induce gradual changes, which, having no constructed precedents to check their growth, spring up into forms of beauty sufficiently distinct in nature from their parent germ to deserve the name of a style. There is no exceptional case that I am aware of to this law of architectural progress. Whenever a nation has changed its national architecture, the substitute has invariably been an importation. The isolated state of the nations which reared styles, was the cause of these new creations; and the hourly intercourse now taking place throughout the world is the simple reason why we can never hope to see another new style arise on the earth.

When Jacob made that cunning bargain with his father-in-law, Laban, who agreed to assign to Jacob all the speckled and spotted of the flock, he, to secure a great increase of those thus distinguished, in the period of their conception laid before them streaked rods, and “the cattle conceived before the rods, and brought forth cattle ring-straked, speckled, and spotted.”



If Jacob were existing now, he would claim as his the fruits of the conception of the greater portion of the architectural flock; for they have peeled rods ever before their eyes in all directions, and their progeny is ring-straked, speckled, and spotted; or, adopting poetical metaphor,—

"'Tis Gothic cut on Greek and Latin,  
Like fustian heretofore on satin."

The only chance, therefore, for the new styler to attain success, is to get a grant of some out-of-the-way island; there beget sons and daughters; duly instill into their youthful minds wondrous notions of the greatness of old mother England, and of her glorious architectural medleys; and after these feelings have worked some two or three hundred years, a stray steamer or a wandering balloon will make a grand discovery, and astonish the world by reports of the new style, which these long-lost islanders had worked out for themselves.

But if we cannot be the originators of a new style, that is no reason why we are to be servile copyists of the old ones, working in the spirit of the Chinese tailor, who made a vest so exactly to pattern, that he copied all the holes and tatters of the original: that course can never gain us honour. The literary men of the day do not want to invent a new language, in order the better to express their ideas. If the ideas are worth anything, it matters not that the language expressing them is an old one, provided that it be used perspicuously and harmoniously. It is *great original thoughts* that are needed in architecture, with such knowledge of the style used as to be capable of employing it consistently and gracefully to clothe these thoughts, a knowledge which can only be acquired by the most intimate acquaintance with the *causes and principles* which led to the glorious results we admire. No man would ever acquire elegance of diction, or reach of thought, by employing his years in copying ancient alphabets; and an architect is as little likely to produce original works, if he confine his studies to details, or hold himself bound to conventional forms, a course which can only cramp his genius, and will never elevate it—a course which will degrade him from a man into a machine—make a puppet of him, with cunning men pulling the strings.

J. E.

#### THE GAS MOVEMENT.

YOUR attention and observation on the "Gas Movement" through the years 1847 and 1848 were of immense benefit to the public at large. They were the enforcing prelude to a better state of things: yet the evils attendant upon the existing monopolies are of an outrageous character, and continue to merit your admonishing spirit, towards an acceleration of increased consumption, which practically involves a beneficial reduction in price.

The abortive attempt on the part of the Great Central Gas Consumers' Company last session to obtain an Act, has not only served to bring them again into the field with redoubled energy and increased virtue, but has served to depress the terms of those companies who, prodigal of their age and importance, gravely declared by advertisement that there could be no reduction in their charge, which through philanthropy had long been placed on a minimum basis, and then scarcely yielded a remunerative profit. But as "coming events cast their shadows before," so the dread of competition has enlarged their philanthropy, and already produced, and will continue to produce, vast saving to the citizens of the metropolis, and in degree extend its benign influence to the provinces. In this town (Nottingham) great abatements have been made, notwithstanding the allegations before a Committee of the House of Commons that the prices were reduced to the lowest possible figure to secure bare interest to the shareholders. "The pressure from without," however, has already led to reductions, and the like cause will operate to further beneficial effect. But do not, Mr. Editor, let these advantages enervate your wonted activity, but give to the country at large, in your future numbers, the germs of the evidence now being laid before the honourable Committee on the "Great Central Gas Consumers' Bill," as to

the desirableness of extended supply, the advancement of science in its purification, economy in its manufacture, and the vast immunities arising to the consumer from the operation of free trade in the consumption of coal gas.

C. H.

#### MISCELLANEOUS NOTES.

With reference to the letter of "C. H." and while thanking him for the encouraging terms in which he is pleased to speak of our efforts in this good cause, we may remark that, although it has never been our intention to go 'off guard' altogether, or be anything but watchful of the progress of this movement, and although our task has been but a thankless one, except in the all-sufficient consciousness of having done our duty to the public, and to the gas companies themselves, whose best interests we have promoted, in our advocacy of the extension of "cheap and good gas;" still having already passed this watchword into the mouths of the public at large, we think it high time for a publication such as this is, to leave that public now to look after these, their own self-interests, in which their own attention has already been vividly and no doubt permanently engaged. And *THE BUILDER* may well be admitted to have already done its duty, seeing that it has not only laid this powerful movement on the stocks, and built it into shape, but lent a willing hand to smooth its launch-ways, and to shove it onward into the broad sheet of the daily press—its proper element, and where it has already met with those fair winds of public favour with which its sails are now filled, so that truly it is now (or ought to be) beyond the influence of our own mere individual arm. Nevertheless, we cannot pretend to have lost all further interest in its welfare, but still mean to report its progress briefly whenever it may seem desirable so to do.—In the success of the Great Central Gas Consumers' Company our metropolitan, and even our provincial readers, may feel interested. It has already been the instrumental means of reducing the price of gas in the city of London down to 4s. a 1,000 cubic feet,—a reduction equivalent, as Mr. Pearson recently remarked, to 50,000*l.* a-year. A more triumphant exoneration of our confident assurances of old—in the face of alleged impossibilities in the way of a reduction from 7*s.* and 8*s.* a 1,000—that the half of it was a remunerative price,—cannot well be conceived, and stamps our whole argument with the involuntary but invaluable evidence of the monopolists themselves in its favour. As to the equality of the article to be henceforth supplied at the reduced rate, we have already noted that the companies will soon find out that their great field of profit in extension lies in the domestic use of gas—an immense field scarcely yet broached either in the metropolis or in the provinces,—and moreover that they dare not and cannot enter on that field without the purest article. Self interest, therefore, will compel the cheap gas to be good. This we have all along seen. The argument of the Western or Cannel Coal Company, therefore, is a lame one. Yet, as we long since also noted, the introduction of cannel coal cannot but militate towards the improvement of the quality of the gas used. But there must be no humbug or obfuscation on the subject of our own old watchword "cheap and good gas light." What we have had hitherto to do with, has been both *dear and bad*, but it does not follow that the cheap must necessarily be also bad: we have clearly anticipated quite the contrary. And besides, why cannel coal gas should be so much dearer than other gas, merely because it is easily made purer, out of coal a little dearer, we cannot see. The price of coal, however high, has been proved—and, indeed, admitted—to be but a very secondary consideration in fixing the lowest possible price of gas; and besides, if we mistake not, cannel coal yields it far more abundantly—more profusely—than common. Used, as we have had it in the north, for domestic fuel, it is constantly pouring forth volumes of gas, almost ready made as it were, and leaping into life spontaneously, flowing like inexhaustible jets into a clear-burning, cheerful, and beautiful fire. The carriage of coal itself by rail is likely to prove but a nominal one, if it be true that immense quantities are to be poured into the metropolis from Wigan, at 3*d.* a ton. But,

even taking the superior purity of the cannel coal gas at the Western Company's own valuation, 8*s.* a thousand feet is not merely, or only, equivalent to the price now charged in the City, far less cheaper, that price being now but 4*s.*; so that 1,750 feet, which they allege is required to give light equal to 1,000 of their own, does not now, within the City at least, cost so much as 8*s.*, the price of theirs. But enough of this for the present: we have all along been inclined to look favourably on this company's endeavours, but they must come down with their 8*s.* to a much more reasonable standard,—ay, and give us their gas, too, as pure as they promise, or, it may be, as they already prepare it.—We are keeping our eye on the Commons' Committee on the Great Central Consumers' Company, and will have a brief review of the evidence and proceedings before it to lay before our readers at its close.—The Chester Gas Company, says *Felix Farley*, offered to light the Chester Railway station for 4*s.* 6*d.* per 1,000 cubic feet. This not meeting the views of the railway companies, they now manufacture their own gas at 2*s.* per 1,000 cubic feet!—The Leicester gas consumers are in the midst of the movement, having called on their local gas company to reduce the price of their gas to 4*s.* The directors, according to the *Leicester Journal*, intend to accede, to some extent, to the call for a reduction.—At the last half-yearly meeting of the Lincoln Company, the usual dividend of 10 per cent. was declared. "A large outlay," says the local *Times*, "is about to be incurred for new mains; but this outlay will be met out of savings, without touching the dividend of 10 per cent. The gas company is the most flourishing joint-stock company in Lincoln. 20*l.* shares were sold by Mr. Brogden, the other day, one at 47*l.* and the other at 43*l.*—the purchasers to pay all expense of conveyance."—At Stockport the gas consumers have been astir of late to obtain a reduction from 6*s.* to 4*s.* 6*d.*—The Southport gas—made with resin and water—is said to "burn brilliantly, and to excel the Manchester gas, in illuminating power, by 26½ per cent., and that of Salford by 20½ per cent., containing neither sulphur nor ammonia, while so far as expense of materials is concerned, the gas may be said to be put into the gasometer free, the residual products paying for the materials employed."—Dr. Gesner, of New York, believes that he can light that city with gas made with Trinidad asphaltum, at a cost of 50 cents. per 1,000 feet.

#### BUILDERS' BENEVOLENT INSTITUTION.

IT is scarcely necessary for us to call the attention of our readers to the anniversary dinner, advertised to take place at the London Tavern, on the 4th June next, Mr. W. Cubitt M.P., in the chair, in aid of the funds of the Builders' Benevolent Institution: the long and influential list of stewards will of itself do this. The society was not established till July, 1847. It has now five pensioners on its funds; another election will be made in October next; and it has 1,600*l.* 3 per cent. Consols, a balance at the bankers', and no debts.

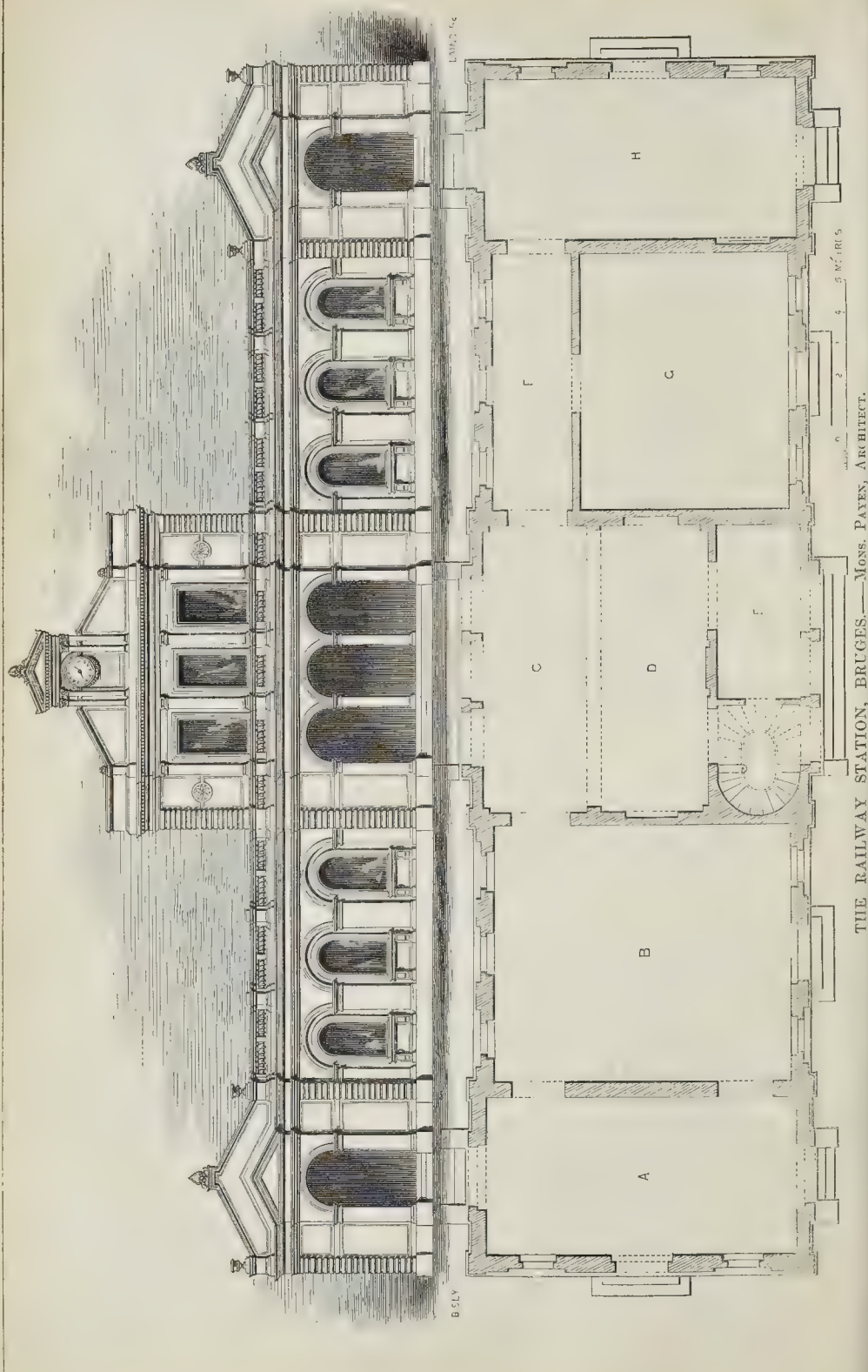
The ball at Willis's Rooms, of which we gave an account, realized, after paying all expenses, 120*l.* 10*s.*, which sum has been paid to the charity by the honorary secretary, Mr. Joseph Bird, to whose exertions the charity is much indebted. Tickets for the dinner may be had of Mr. George Bird, the treasurer.

We gave our strenuous aid to the society when it needed it, and have reason to believe contributed to its success. We feel, therefore, more than common interest in its future progress.

A VIEW OF THE BRITANNIA TUBULAR BRIDGE.—A view of this wonderful work, as it will appear when completed, the view taken on the spot and the details from the working drawings, has been produced in the latest style of treble-tinted lithography, by Mr. George Hawkins, and is now published.\* The size of the print is 24 in. by 15 in., and it is beautifully executed. Such of our readers as desire a memorial of Mr. Stephenson's great work will find this just what they want.

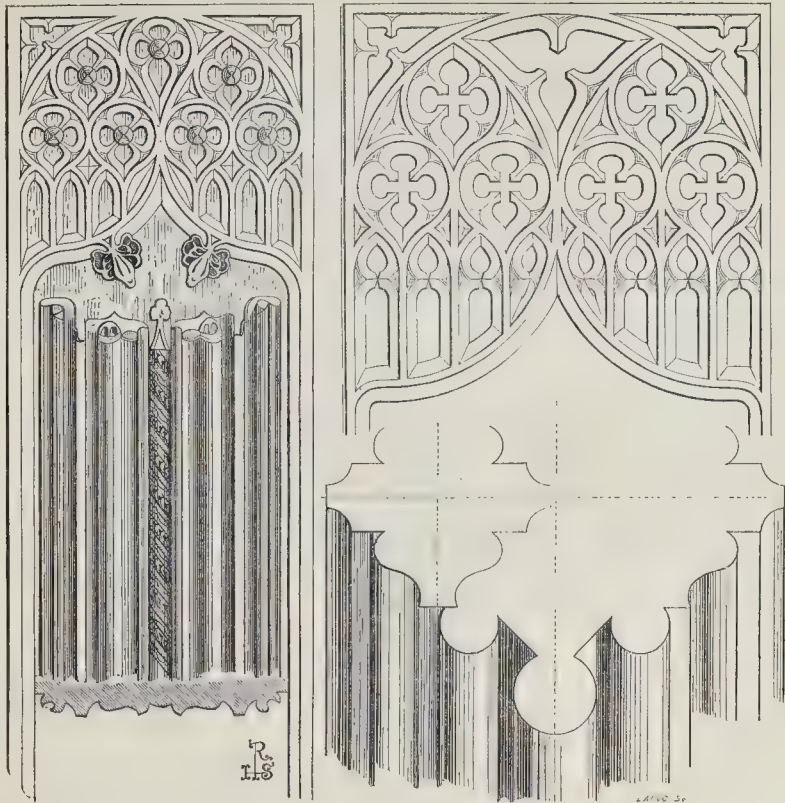
\* 116, Camden-road villas, Camden Town, or Messrs. Day and Son, Gate-street, Lincoln's-inn-fields.







## OAK PANELS FROM LUTON CHURCH.



## THE RAILWAY STATION AT BRUGES.

THE accompanying engraving represents the principal front of the Bruges Railway station, which we have engraved from an outline drawing of it given in the *Journal de l'Architecture*, published in Brussels.

The apartments A and B are appropriated to the parcels and baggage department; C is the vestibule; D the pay-place; and E the manager's room; F is the passage-way; G, the first and second-class waiting-room; and H, the third-class waiting-room. The doors all open on to the platform.

## OAK PANELS FROM LUTON CHURCH.

THE accompanying cuts are representations, quarter real size of panels, from the oak screen in the Wenlock chapel. The mouldings are half-size, and show the principal and intermediate mullions.

The chapel derives its name from the founder, Sir John de Wenlock, and appears to have been built some time before the year 1461, when he was created Baron Wenlock. The following lines were formerly found in the Eastern Window of the church:—

"Jesu Christ, most of myght,  
Have mercy on Johu de Wenlock, Knyght,  
And on his wife Elizabeth,  
Who out of this world is post by death.  
Which founded this chapel here;  
Help them with your hearty prayer,  
That they may come to that place,  
Where ever is joy and solace."

This was the Lord Wenlock who met his death by the hand of the Earl of Somerset for his supposed pusillanimity at the battle of Shrewsbury in the wars of the Roses.

The chapel is placed on the north side of the chancel, and, with its oak screen, would form

an ornament to the church, were it not filled in with faded green baize and choked up with high unsightly pews. The chapel contains several altar tombs, on one of which is a very fine brass.

Luton Church, dedicated to Saint Mary, has been one of the finest in the county of Bedford. It has a bold western tower, in style Early Perpendicular, composed of flint and stone in diaper work, and although much dilapidated, presents from its bold outline a grand appearance.

The church contains many objects of interest in tombs and brasses, and good specimens of Early English and Decorated work.

In the latter style may be mentioned a stone Baptistry Chapel mounted on steps and covering a font of good design. It is in good preservation, and alone is worth a visit, were there nothing else of interest in this fine but much neglected church.

## SIGHTS AND SCENERY.

*The Lyceum Theatre.*—The great Industrial Exhibition has produced a clever *pièce de circonstance* at this house, called "Novelty Fair; or, Hints for 1851." It is from the pen of Mr. Albert Smith, and is full of smart hits at the salient nobs of the day, and is aided by some pretty groupings and a clever scene. A tableau of the "Industry of Italy" is worthy of Uwins. The entrance to the exhibition advertises "Murray's Hand-book to the Collection, in 24 volumes, folio;" that "all persons losing themselves are to apply to the inspectors;" that "cabs are in waiting to drive round the collection;" and that telescopes may be borrowed "to see about five miles." The interior of the building is made by Mr. Beverly to represent a far-extending railway shed of iron, with a roof of glass in large

squares. The Thames and its dirt, the panoramas and their length, the Trafalgar fountains and their spouting, are incarnated; and the poor Houses of Parliament, in shape of a graceful damsel, turret-crowned, says, with a sigh, which we re-echo,—

"The staff of workmen they've once more diminished,—  
I wonder if I ever shall get finished?"

*Artist-Actors.*—The St. James's Theatre was filled in every part on Saturday, the 18th, to witness the amateur performance of "The Rent Day" and "The Poor Gentleman," in aid of the "Artists' General Benevolent Institution." We espied amongst the audience, mixed up with no end of models for artists and distraction for common men, Messrs. Auldjo, Cockerell, R.A., far away at the back of the pit, S. Cousins, T. Creswick, A.R.A., Goodall, T. K. Hervey, T. Landseer, Lewis Pocock, T. Uwins, R.A., E. M. Ward, A.R.A., genial David Roberts, and courtly Sir William Ross. The principal parts were played by Mr. Hamerton, Frank Holl, Mr. Topham, Mr. G. Cruikshank (who further sang his most moving ballad of "Lord Bateman") Mr. John Wilson, Mr. J. Tenniel, Mr. Wingfield, Mr. M. Wood, Mr. Cope, and Mr. Angell. Some one has said that "amateur" means "impostor;" but that certainly was not the case on this occasion, for all played like artists, as they were. The whole affair was managed most successfully, and will, we trust, add something considerable to the funds of the valuable institution it was intended to serve.

*The Literary Fund Dinner*, on the 19th inst., was numerously attended (although we looked for some of the great names in real literature), and, under the able presidency of Mr. Justice Talfourd, passed off well. The chairman's chief speech was a fine effort of oratory, but with more simplicity would have sounded more



real. Mr. W. Tooke, Mr. Bell, Hon. Mr. Phipps, Mr. G. P. R. James, and others, addressed the meeting. We regretted, in the long list of toasts, the absence of any recognition of Art. We trust this omission will be rectified next year.

**Burford's Panorama.**—A charming view of the "Lakes of Killarney" has been added to "The Arctic Regions," in Leicester-square. It is painted by Mr. Burford, assisted by Mr. H. C. Selous, from recent sketches, and gives the most pleasant notion of the land of the lake,—the wonder of Kerry, and the boast of Ireland.

#### PROPOSED BUILDINGS FOR THE SCOT-TISH ACADEMY AND NATIONAL GALLERY, EDINBURGH.

MR. THOMAS HAMILTON has published a letter to the Premier,\* objecting to the course which is being pursued by the Board of Manufactures in respect of the proposed National Gallery, on the ground mainly that living artists will receive no legal or permanent position under the contemplated Act. He likewise objects to the erection of a single building on the Mound at Edinburgh, as now proposed, instead of two, as originally intended, and appends plans and views explanatory of the design prepared by him in accordance with the instructions of the Academy. Since the appearance of Mr. Hamilton's pamphlet the Academy have passed a strong resolution, disapproving of the statement made, and attributing the proceeding to a personal motive on his part, that of having his own designs carried out. The structures he proposes, one on each side of a carriage-way behind the Royal Institution, and leading to the new Free Church College, are of the Doric order, the Temple of Theseus being the example followed. The principal gallery in each is an elongated octagon, 70 feet long and 40 feet wide. Mr. Hamilton sets it forth as an *advantage*, that the "pronaos and portico (of the temple adopted) can be adapted and restored with perfect exactness in dimensions and proportions!"

#### NOTES IN THE PROVINCES.

The district church of Amiotts, Althorpe, Lincolnshire has fallen to the ground. The rector is endeavouring to raise 800*l.* to rebuild it!—The last stone of a new graving dock, at the north corner of the dockyard at Deptford, was laid on Saturday week. It is 305 feet long and 88 feet broad, and the entrance, which is closed with a caisson, is 65 feet.—For the better prevention of fire at Windsor Castle, waterworks of some magnitude have just been commenced by the Woods and Forests. The main pipe from the Thames, in Datchet-lane, to the grand reservoir at Cranbourne-hill, in Windsor Great Park, will be upwards of three miles in length. This reservoir, which will contain at least a million gallons of water, is being constructed on an eminence several feet above the height of the Round Tower at the castle. Connected with the main pipe, communicating with this reservoir, there are to be numerous fire plugs all around and in the immediate vicinity of the castle (the quadrangle, the terraces, the upper and lower foundations, &c.), to which hose can be attached in case of fire; the water, when required, being thrown by its own force, from its height in the reservoir, over the summit of the highest tower. A steam-engine of 15-horses' power is being erected on the bank of the Thames in Datchet-lane, not far from the railway station, for forcing the water from the river (after being filtered through gravel) to the reservoir. It is not expected that the expense of these works will exceed 10,000*l.*—The spire at the west end of Norton-by-Gaulby Church was on the 13th inst. again struck with lightning or a fire-ball, and the whole of the spire, which was seriously damaged by the lightning in 1843, and then repaired, has now been knocked down as low as the battlements. Part of the spire fell through the roof of the church, destroying a portion of the gallery. The few inhabitants of the parish had just

succeeded in paying off the debt (200*l.*) incurred by the previous accident.—It is proposed to erect a new church at Newton, Southampton, to be called St. Matthew's. The cost is to be about 2,200*l.*, of which the Rev. F. Russell, M.A., has presented 1,200*l.*, besides a repair fund, and an endowment of 1,000*l.* Mr. T. Chamberlayne, of Cranbury-park, has given 250*l.*, and the fee simple of the site. The inhabitants and friends of the church in general are now solicited for the requisite remainder. The design was furnished by Messrs. Hinvies and Belborough, of Southampton, architects. The building is to have 780 sittings, or 1,100 if with galleries, and one-third are to be free.—The sub-committee of the corporation of the poor of Bristol, to report on the designs submitted for alterations and improvements in the Stapleton Asylum, have recommended for adoption that bearing the motto, "*At spes non fracta*," the authors of which are Messrs. Pope and Co. The designs have also been approved by the committee of management.—The parish church of Waltham-on-the-Wolds has lately undergone considerable alteration, and is rapidly progressing towards completion. The chancel has been entirely rebuilt, at some expense.—It has been resolved to build new and enlarged church schools at Melton.—The foundation stone of the new church of St. Stephen, to be erected in Crown-street, Edge Hill, Liverpool, was laid on Friday week, by the Bishop of Chester. When completed, it will hold upwards of 1,000 persons; 500 sittings free, and 100 let at a low rental. The sum of 5,500*l.* has been collected, 5,000*l.* of which will be expended on the church, including 1,500*l.* cost of land. 1,500*l.* more are to be raised for endowment. Mr. G. G. Scott is the architect, and the design is in the decorated Gothic style.

#### ELECTRO-TELEGRAPHIC PROGRESS.

M. W. EISENLOHR, superintendent of the electric telegraphs in the Grand Duchy of Baden, has adopted a method of rendering the battery more constant in its action, and less liable to carelessness from too little or too much acid. The employment of a solution of bitartrate of potash, in acidulated water, for the zinc couples of a Daniell's battery, and of a moderately concentrated solution of sulphate of copper, for the copper element, he says, has fully and effectually answered the desired object.—Mr. Bains' electro-chemical telegraph has been exhibited at the Elysée, by order of the President of the French. Dr. Lardner and other Englishmen were present, as were the French Minister of the Interior, and Louis Napoleon himself, M. Leverrier, and others. The prince is said to have been astonished by the celerity of its operation. A despatch containing 4,327 letters was conveyed in the space of fifty-five seconds, being at the rate of nearly 1,500 letters a minute.—To the immense power placed in the hands of individuals, and its great liability to abuse, in such an establishment as the electric telegraph when ramified throughout a country and under the control of a mere money-making company, we have repeatedly drawn attention. The wranglings of the present telegraph company with inventors and news-agents in our own courts of law, even independently of anything like specific charges of abuse (though not a few of these are now on official record), will, if we mistake not, open the eyes of the public at large to the importance of our warnings. The company certainly have not acted wisely for themselves in their late line of policy. As lately observed by Sir F. Thesiger, in showing cause against the rule granted to show cause why a criminal information should not be filed against Messrs. Willmer and Smith, news-agents,—“considering the circumstances which appear on the affidavits filed, one cannot but admire the boldness, rather than the prudence, of the Electric Telegraph Company, in calling the attention of the public to the enormous powers with which they are intrusted, and the danger which must result from their abuse.” In respect to the rule in question, he had no doubt, from his knowledge of the principle on which the Court interfered in granting criminal informations, that the result of the present inquiry would be that the rule would be discharged. Lord

Campbell, on hearing both parties, did discharge the rule, but the whole merits still remain to be discussed in another shape, when charges of a serious nature, it appears, will be urged in self-defence against the telegraph management.

#### SOCIETY OF ARTS.

At the meeting of the 15th May, paper was read "On Siemens's Regenerative Condenser." The origin of this condenser was the suggestion to the author of Mr. Graham, of Mayfield Works, "to recover the heat from the condensing water in the form of a reduced amount of boiling hot water." It consists of an upright rectangular trunk of cast-iron, the lower end of which is cylindrical, and contains a working piston, which performs two strokes for each one of the engine. In the trunk is a set of copper plates, upright and parallel to each other,—the intervening spaces being the same as the thickness of the plates, viz., between  $\frac{1}{16}$ th and  $\frac{1}{8}$ th of an inch. The upper extremity of the condenser communicates on one side with the exhaust-port of the engine, and on the other through a valve with the hot-well. The plates are fastened together by five or more thin bolts, with small distance-washers between each plate. There is a lid at the top of the trunk, by removing which the set of plates can be lifted out. Immediately below the plates the injection-pipe enters. The action of the condenser is as follows:—Motion is given to the piston. At the moment that the exhaust-port of the engine opens, the plates are completely immersed in water, a little of which has entered the passage above the plates, and is, together with the air present, carried off by the rush of steam into the hot well, the excess of steam escaping into the atmosphere. The water then, in consequence of the downward motion of the piston, recedes between the plates, exposing them gradually to the steam, which condenses on them. Their upper edges emerging first from the receding water are surrounded by steam of atmospheric pressure, and become rapidly heated to about 210 degrees. The emersion of the plates still continuing, the steam is constantly brought into contact with fresh cool surface, by which the greater portion of it is condensed, until, as the piston descends, the injection enters and completes the vacuum. This is done by the time the working piston of the engine has accomplished  $\frac{1}{4}$ th of its stroke. The upper extremities of the plates become heated to near 210 degrees, and the lower to about 160 degrees. Taking the initial temperature of the condensing water at 60 degrees, the final temperature at 210 degrees, the latent heat of steam at 212 degrees, 960 units, the quantity of water required is 6.6 lb. to condense 1 lb. of steam of atmospheric pressure. The common injection condenser (supposing the temperature of the condensed steam to be 110 degrees) requires 21.2 lb. in place of 6.6 lb.

#### USURPATION OF PATENT RIGHTS.

A WORKING-MAN has justly complained in your paper of the expenses imposed on poor inventors who take out patents, which, in the most simple cases, amount to 120*l.*

There can be no question that such a tax is a great discouragement to the ingenuity of originators, as well as a clog upon art. There is, however, a much heavier charge and still greater obstacle to be encountered by every inventor when he has taken out a patent, namely, the reluctance of the public to acknowledge the patentee's right to license fees, which fees are his only means of requital for expenses already incurred, both in cost of the royal signet, and of bringing out and fabricating the material.

Sir, I took out a patent in 1843 for chimney flue linings in terra-cotta or tiliary ware, the structure being a tube or cylinder (oval or circular), moulded in lengths of 20 inches or 2 feet, which, being built in the solid wall, assured a better draught, a perfect security against fire (as all communication with the woodwork, such as plugs, is cut off by the iron stone lining), and an immunity from smoke in apartments, besides greater facility in cleansing.

\* "A Letter to the Right Hon. Lord John Russell, M.P., on the Present Crisis relative to the Fine Arts in Scotland." Edinburgh, Grant; London, Weale.



At a great cost (say 1,000*l.*) this application of the earthen tube to chimneys was brought out by a gentleman who took part in my interests: a wharf was opened for the sale of the tubes at Belgrave Basin, Pimlico; and considerable quantities were sold. The first public structure which used them was the Consumptive Hospital, Old Brompton, built by the Messrs. Bird, of Hammersmith, to whom we sold them.

After two years, finding the sale of material slack and unremunerative, we discontinued the establishment at the wharf, and sold at half price our residue of stock to the Commissioners of Sewers for drain pipes! In the year 1849 I found, however, that my flues had been used in Buckingham Palace, in Mr. Hope's mansion in Piccadilly, in Lord Ellesmere's, in the Marylebone Hospital, in Windsor Castle, and in fact, throughout all the country in great public buildings and private residences.

I applied directly to the owners and architects for a moderate remuneration: these gentlemen hesitated; but finally, having laid their heads together, refused to acknowledge my right, although my patent is enrolled in the high Court of Chancery; and now, in addition to the heavy losses already sustained by me, I am compelled to sue every one of the parties who have pirated my plans.

It is not my wish to obstruct the manufacture of tubular flues, neither is it my interest to prevent their sale and extensive use; but my rights demand a small tribute, on the application in buildings, which can neither injure the manufacturer nor weigh upon the builder of houses.

WILLIAM DENLEY.

### Books.

*A Catechism of the Steam Engine, with various Suggestions of Improvement.* By J. BOURNE, C.E. Third edition. Longman and Co., Paternoster-row.

This is not a mere elementary treatise to enlighten the ignorant reader as to what is a piston, a valve, or a cylinder. Much of it in the outset relates to the action of the steam engine, and implies, to begin with, at least a considerable knowledge of its structure, which, however, is afterwards practically discussed in a way that will be useful more especially to those engaged in its construction, as the preceding part will be to all employed in its management. Such a little volume as this, written on practical principles, and not a mere literary compilation from theoretical works, as so many compendiums on the steam engine have been, appears, though also having higher purposes, to be just what ought to be put into the hands of every working engineer employed in the management of engines, whether fixed, locomotive, or marine. The details, according to the author, are not taken from books, but derived from practice and personal communication with experienced engineers. Though giving an outline of the whole subject in small compass, the present volume is not intended as a substitute for the quarto treatise lately published by the same author, but rather as an introduction and a sort of supplement to that work.

### Miscellanea.

**TREATMENT OF BUILDERS.**—In reply to advertisement, six tenders were delivered by builders, generally considered to possess equal means and facilities. The amounts were as follows:

Hare .....	£2,573
Rinshole .....	2,247
Mason .....	2,204
Chadleigh .....	2,130
Collins .....	2,068
Blackmore .....	2,030

Strange to say, that the second tender in amount, 2,17*l.* above the lowest, is selected. And what is still more strange, the proprietor, in reply to a letter sent by Mr. Blackmore, states that it was his intention from the earliest stage of the business to employ Mr. Rinshole. He so far forgets himself, that he asserts, "you entered into competition at your own risk." How can the word "competition" apply to this unfair business? J. S.

**RAILWAY RATING.**—The London and North-Western have resolved to resist what they conceive to be an unjust attempt to extort extravagant rates on their property at Euston-square. At a late meeting of the Southampton trust, they appealed against the assessment of the station. In 1848, the rate was 508*l.*; and in 1849, from an increase of buildings, they consented to 1,050*l.* The commission, however, has now raised the assessment to 23,800*l.*, on which the company would be liable to pay about 1,700*l.* Evidence was given that the value was only 4,600*l.* instead of 23,800*l.*, and that the company only occupied 1-100th part of the trust, but were called upon to pay one-eighth of the rates. The decision was adjourned. At a late vestry of St. Pancras also, it was stated that this company had paid for poor-rates, in 1848, 1,714*l.*, and in 1849, 2,416*l.*, but that the vestry had increased the assessment to 27,463*l.* net annual rental; and that at that rate, they would have to contribute between 3,000*l.* and 4,000*l.* to the poor-rates of the parish. After a long discussion, it was announced that the vestry would reconsider the assessment.

**THE PROGRESSIVE SOCIETY OF JOINERS AT LIVERPOOL.**—A public meeting of this new society was held on 20th inst., the Mayor in the chair, when its objects were announced to be,—for mutual improvement, as well as business, apart from public-houses,—for the establishment of a trade library,—and for provident purposes, such as insurance for behoof of widows and families, making good the loss of tools by fire, &c. The instruction of apprentices and sons of members, as well as of the members themselves, by lectures, classes, &c., is also comprised in the constitution of the society, the members of which are to be called upon to pay 1*s.* to 2*s.* entrance-fee, with 2*d.* a-week in regular contributions, both sums to be increased hereafter if requisite. Mr. W. Thomson, Mr. J. A. Picton, Mr. W. Rathbone, and others, addressed the meeting in very effective speeches; and amongst other resolutions, it was unanimously resolved,—“That, in the opinion of this meeting, the interests of the employer and the employed are mutual and identical, and the association therefore earnestly call upon the employers of labour in this town, those engaged in the building trade especially, to aid in this effort to improve the character and condition of men whose moral conduct and habits of industry entitle them to the support of all who are interested in the due reward of labour as well as in the creation of wealth.”

**THE ECCLESIOLOGICAL SOCIETY.**—The eleventh annual general meeting of this (the late Cambridge Camden) Society, was held on Thursday 16th, at the National Schools, Albany-street, Regent's-park. The Venerable Archdeacon Thorp, president, presided. There were also present Lord Campden, Mr. A. J. B. Hope, M.P., Sir S. Glynne, Bart., Messrs. Bevan, Pearson, Forbes, France, Luard, Dickenson, Chambers, Parnell, Eddis, Carpenter, Truefitt, Winter, Street, Place, Russell, Stuart, Macculloch, Wegg-Prosser, M.P., &c. The Rev. B. Webb, the secretary, then read the report. A paper on Anthems, was read by Mr. F. R. Wegg-Prosser. The Rev. T. Helmore read a paper on the Cantus Collectarum, and on the Decline of True Ecclesiastical Music in the Cathedral and Collegiate Choirs in this Country. A paper was next read by Mr. G. E. Street, architect, endeavouring to prove that certain churches in Kent and Surrey were the work of the same architect, and concluding with the recommendation of a church-guild among professional architects. Mr. G. G. Place, architect, explained a model by which he illustrated a method, devised by himself, for shoring up central lantern-towers, where it might be necessary to rebuild their bearing-arches and piers. The meeting then examined some specimens of church plate and enamelling, exhibited by Mr. Keith, the manufacturer to the society; also some iron-work, cheaply wrought by Mr. J. Leaver, and some wood-carving by Philip and Co.

**KNOWLEDGE OF CURVES.**—We understand that Mr. Jopling, under the sanction of the Board of Trade, is endeavouring to give “an impulse to art” by explaining, in the Government School of Design, Somerset-house, the principles and practice of the septenary system.

**INSTITUTION OF CIVIL ENGINEERS.**—On Tuesday, May 21, (Mr. William Cubitt, President, in the chair), the paper read was “On Printing Machines, especially those used in the printing of the *Times* newspaper,” by Mr. Edward Cowper. Some interesting statistics, relative to the printing of the *Times*, were mentioned, from which it appeared that on the 7th of May, 1850, the *Times* and Supplement contained 72 columns, or 17,500 lines, made up of upwards of a million pieces of type, of which matter about two-fifths were written, composed, and corrected after seven o'clock in the evening. The Supplement was sent to press at 7.50 P.M., the first form of the paper at 4.15 A.M., and the second form at 4.45 A.M.; on this occasion 7,000 papers were published before 6.15 A.M., 21,000 papers before 7.30 A.M., and 34,000 before 8.45 A.M., or in about four hours. The greatest number of copies ever printed in one day was 54,000; and the greatest quantity of printing in one day's publication was on the 1st of March, 1848, when the paper used weighed 7 tons,—the weight usually required being 4½ tons; the surface to be printed every night, including the Supplement, was 30 acres: the weight of the fount of type in constant use was 7 tons; and 110 compositors, and 25 pressmen, were constantly employed.

**DOINGS OF BY-GONE ARTISTS.**—Mr. Reinagle, late R.A., has been giving some odd stories of by-gone artists in the *Literary Gazette*. Amongst his statements, he says, that Ramsay having received an order from King George III. to paint ninety pairs of his whole-length portraits of the King and Queen, Ramsay contracted with the father of the writer to paint them for 50 guineas the pair; and for these pictures, which passed as his own work, Ramsay received 200 guineas the pair, he being in Rome at the time. Sir W. Beechey received 120 guineas for a small copy of his picture, “George III. reviewing the Troops in Hyde-park,” and grumbled at paying the writer 80 guineas for doing it, saying he ought to have done it for 20*l.* Chantrey, he says, ambitious of a fame for versatility, engaged to make a set of drawings for a Topographical Work on Derbyshire. His sketches were nearly unintelligible scratches; words stood in most cases for drawn objects—as trees, a tree, a wall, a road, a path, figures, ducks, running water, a woman, children, stones, rough stone wall, and so on. “I agreed to make proper drawings from them, at the charge of 6 guineas each. When the first six were engraved by W. Cook, and I was invited to meet Chantrey at his (Cook's) house, to my astonishment Chantrey's name was engraved at the foot as the artist, and not mine.” Chantrey's celebrated group of two children in Litchfield Cathedral, he says, was composed, modelled, and executed in marble by an Italian artist. Hoppner pledged his word to Count Woronzoff to let him have a copy of his half-length portrait of W. Pitt, done by himself, but the writer painted it, as he had done thirteen others. He says, “Hoppner came to me, and desired that I would not vein the Giallo antico column, as he had a particular reason. I wondered why so insignificant a part should not be left to me, but I found this was done that he might be able to say he painted it. Then the Count desired him to sign it, which he did.”

**REDUCTION IN THE COST OF RAILWAY WORKS.**—Upwards of forty miles of railway work were, it is said, let by the Directors of the Great Northern Railway Company on Thursday last, for considerably under 5,000*l.* a mile.

**ESTIMATING SEWERS.**—The following is a list of tenders sent in for the construction of sewers and pipe-drains at West Brompton, in accordance with advertisement in THE BUILDER; Messrs. Godwin, architects:

Corbet (at prices)	
H. Emmins (ditto)	
Bovd Smith .....	£840 6 0
Collard .....	817 2 6
Cooper .....	568 10 0
Mutter .....	457 11 4
Humphries and Thirst ..	419 0 0
Knight and Son .....	383 0 0
Peirson .....	348 0 0
H. Johnson .....	314 0 0
Williams .....	330 0 0
Kamester (accepted) ..	302 0 0



**ST. MARY'S, CHELTENHAM.**—The parish church of St. Mary, Cheltenham, has recently been undergoing repairs. The woodwork of the roof of the south aisles, almost throughout its entire length where it abuts upon the wall of the nave, was found much decayed, but has now been effectually repaired. The organ, which has stood for many years in a loft at the west end of the nave, above the general tier of galleries, having become much out of repair, has been taken down, which has had the effect of throwing open a very beautiful decorated window, the upper part of which has hitherto been entirely concealed. The organ will not again be erected in the same situation, but will probably be placed in the south transept. The chancel also has been improved by removing the upper part of the altarpiece, that almost concealed the tracery of a fine window in the east end. The design of the altarpiece is Corinthian, and it is very well carried out. It is entirely of oak, in excellent preservation, and was removed from Gloucester Cathedral about forty years ago; but the style is quite incongruous, and it seems not improbable that ere long the whole will be removed, to give place to the more simple design which it conceals; the window having an embattled moulding at the springing of the arch; the part below being filled in with stonework between the mullions, and having been decorated with wall paintings, portions of which still remain. The present churchwardens have been actively engaged in cleaning off the numerous coats of whitewash and colour which their predecessors had imposed; but much still remains to be done. The windows of the church are very good: there is a very beautiful circular window in the north transept, and some with good flowing tracery. The general proportions and the details of the building are good, but the effect is much injured by the high pews and unsightly galleries, which have from time to time been erected, in order to obtain increased accommodation.

**THE IRON RAILING ROUND ST. PAUL'S.**—The other day, when Mr. Cockerell declared, before the City deputation to the Dean and Chapter of St. Paul's, that the iron railing round St. Paul's was an ornament to the building—or, in other words, an integral part of the structure,—it is only fair to assume that he spoke in his capacity of architect to the Dean and Chapter, and not from his chair as professor of architecture in the Royal Academy. The iron railing, it is true, is of the age of Wren, and was possibly designed by him, but it is not an ornament to the structure, or in any way an integral part of the whole design. Mr. Cockerell spoke to please others, and we are disposed to transfer the blame of his assertion from the person employed to the persons who employ. The Dean and Chapter look on the iron railing as a military outwork of St. Paul's, the surrender of which may lead to fresh attacks on the church—to the abolition of the twopennies of show-money, and the throwing open to the public of the great west door.—*Athenæum*.

**THE IRON TRADE.**—More blast furnaces are being blown out, and a struggle between masters and men, on the question of further reducing wages, is threatened. Iron, as a raw material, at present seems to be a "drug" in the markets not only of England and Scotland, but of America too. As to prices, 4*l.* 10*s.* for common bars were recently taken in Wales, but *Aris's Birmingham Gazette* speaks of 5*l.* 10*s.* for bar-iron, and hoops for 5*l.* 15*s.*, delivered in Birmingham or Liverpool. The yield of pig-iron in Scotland has been greatly reduced by the strike in Lanarkshire; but any thing like a steady rise of price in consequence is not expected. The *Birmingham Journal*, in quoting the Board of Trade returns, to show that the exports of machinery, hardware, iron, and steel, have increased, as we are glad to say, they have done, from 593,967*l.* in October last, to 818,361*l.* in March, nevertheless "contends (and with truth) that the value of the hardware and machinery exported is no test of the activity of the iron trade, seeing that the cost of labour in these articles exceeds the value of the material."

**THE REPRODUCTIVE EMPLOYMENT OF PAUPERS.**—Mr. P. Scrope has given notice to move a resolution in the Commons, that all capable paupers be employed in useful and reproductive labour.

**PROJECTED WORKS.**—Advertisements have been issued for tenders, by 26th June, for finishing three houses at Hastings; by 7th, for the restoration of St. Martin's Church, West Drayton,—designs by Mr. C. Innes, of Philpot-lane, City, architect; by 3rd, for the formation of an additional building in the yard of the workhouse in St. Martin's-in-the-fields; by 5th, for painting and repairing gas lanterns and fittings for the trustees of the parish of St. Mary, Islington; by 29th May, for the erection of a turret eight-day clock to the Townhall of Southmolton, Devon; by 28th, for 520 feet run of Herm or Aberdeen granite kerb, 1,750 feet run of like granite kerb, also 6,030 feet super. 3-inch tooled Yorkshire paving stone, and 34 yards super. 4-inch by 6-inch dressed granite pitching, for the Highway Board for West Ham, Stratford, Essex; by 28th, for the execution of the work of gas fittings to the station buildings of the Great Northern Railway Company, Maiden-lane, London; by a date not specified (names by 25th), for the erection of an institution for the blind, at Birmingham, Mr. S. Hemming, of Temple-row, there, architect; by 1st June, for an improvement of the turnpike-road at Gospel-end, specifications, &c., by Mr. J. Ritson, of Upper Gornall, near Sedley, surveyor; by a date not specified, for five almshouses at Richmond-hill (bricks to be found at 1*s.* a thousand); by a date not specified, for the execution of the works required in erecting a school for 500, and residence for master, in St. Paul's district, Leeds, design by Mr. Burleigh, of 40, Albion-street there, architect; by 27th inst., for two cast-iron purifiers, and various other articles, for the Boston Gas-light and Coke Company; by 1st June, for building a stone wall near Worcester, Mr. E. Lucy, of 61, Sidbury, there, surveyor; by 28th inst., for 700 yards Kentish rag sittings for the Hammersmith Board of Surveyors; and by 30th, for 10 fathoms yellow deal ends and 3 cwt. of wood tyers, for the workhouse authorities, Fulham.

**COMPETITION.**—Designs are wanted for a pauper school at Sutton, Surrey; particulars as advertised.

**THE MODEL HOUSES IN STREATHAM-STREET, BLOOMSBURY** are now nearly ready for occupation, and were opened to private view on Tuesday. Having already presented our readers with an illustrated description of this building, we have little to add, except that separate staircases have been dispensed with, as well as other internal communications, between the different storeys, and one common staircase, to galleries or corridors leading to the outer doors of the separate suites or tenements, adopted, in the belief, which we hope may not be a mistaken one, that the window-tax on the whole will thus be avoided, each suite containing less than seven windows.

**BUILDING AND ENGINEERING WORKMAN'S PROVIDENT AND AID SOCIETY.**—The following sums have already been subscribed in aid of this undertaking:—Messrs. Baker, 100*l.*, T. Cubitt, 100*l.*, W. Cubitt, M.P., 100*l.*, J. B. Bunning, 50*l.*, C. R. Cockerell, R.A., 50*l.*, P. Hardwick, R.A., 50*l.*, Messrs. Lee, 31*l.* 10*s.*, S. Angell, 30*l.*, I. K. Brunel, 25*l.*, R. Stephenson, 25*l.*, T. Piper, 21*l.*, Messrs. Piper, 21*l.*, W. Tite, 21*l.*, C. Ansell, 10*l.* 10*s.*, W. Cotton, 10*l.* 10*s.*, S. Grimsdell, 10*l.* 10*s.*, H. J. Prescott, 10*l.* 10*s.*, H. Roberts, 10*l.* 10*s.*, T. L. Donaldson, 5*l.* 5*s.*, F. C. Penrose, 5*l.* 5*s.*, C. C. Nelson, 5*l.* 5*s.*, G. Wales, 5*l.* 5*s.*

**THE LATE JAMES THOM, THE SCULPTOR.**—This self-taught artist died at New York, on 17th ult., of consumption, at the age of 51 years. He left Ayrshire, and went to America some years since in search of his freestone group "Tam O'Shanter and Souter Johnnie," or its value, and never returned. Besides this somewhat celebrated work, which was finally deposited in Burns's cenotaph at Ayr, and the group of "Old Mortality," perhaps his next most noticeable work was the sculpture and ornamentation of the Gothic Church of the Trinity, at New York. Mr. Thom has left a widow and two children in that city.

**MOZAICS AND MODELLING.**—We have recently seen some excellent mosaic work by M. Ganser, an artist, from Munich, of the school of Schwanthaler, who has taken up his residence in England. He appears to have considerable skill in designing and modelling friezes, &c., for plasterers' decorations.

**IMPROVEMENTS IN ROCK-CUTTING APPARATUS.**—Mr. Newton, of Chancery-lane, has patented improvements in machinery for dressing, shaping, cutting, and drilling, or boring rocks or stones, and partly for driving piles. Amongst the claims are the use of cutters of circular metal plates mounted on a shaft, such cutters to pass over the surface of the substance operated on with a rolling motion; also the use of cutters, supported on a rotary stock, which act upon the surface by impact, or by striking against it. Also a combination of friction cylinders, with treadle and barrel to raise the boring tool by winding a cord.

**THE LAND SURVEYORS' ASSOCIATION.**—A petition to Parliament from the land surveyors of Great Britain is now in course of signature at 21, University-street, Bedford-square. It prays the Legislature "to avert the ruin with which they are threatened, by withdrawing the Ordnance surveyors from local works and replacing them upon the national survey, which will fully occupy them for many years to come, and from which they were removed to survey the metropolis, and for other civil work, to the great disadvantage of the public, and injury of the petitioners, who have thus been deprived of their employment, while they have to contribute towards the maintenance of that body which has so unfairly superseded them."

**EXCAVATIONS AT LYMNE.**—Mr. Elliott and Mr. Roach Smith, aided by a few friends, are at the present moment engaged in laying open the foundations of the Roman *castrum* at Lydney, previous to making excavations in the interior of the station. The walls of the *castrum* enclose about ten acres. The soil has accumulated to the depth of from 3 to 4 feet over the Roman level, which, added to the extensive circuit of the walls, and the shattered and dislocated condition of the foundations, will demand a considerable outlay of money to defray the expense of labour. Up to the present day, the foundations of about nine round towers and two postern entrances have been laid open. The Treasury, in reply to a memorial asking aid, say they have no funds available for such a purpose; and contributions are now sought from such as feel the importance of such investigations.

**VENTILATION OF THE COMMONS.**—Dr. Reid has petitioned to be allowed to bring his case personally before the Commons.

**A NEW MODE OF GENERATING STEAM.**—An American correspondent writes:—"A new mode of generating steam has been put into successful operation in Virginia—a mode that avoids completely all risk of an explosion. No boiler is used, the steam is raised by means of a small jet of cold water injected upon a large plug of iron fixed in the surface. I will forward a description as soon as I can obtain particulars."

**VENTILATION OF THE NATIONAL GALLERY.**—There has been much said and written on the subject of the National Gallery, and the injury the pictures have sustained, and are sustaining, from dust and a fetid atmosphere. The remedy for this is so simple and inexpensive that it is surprising it has never occurred to parties to adopt it. If any person requires a practical proof of the necessity of well ventilating the upper part of a heated room, let them go into a large kitchen, where they are cooking and using charcoal. Let them then mount a ladder and try the atmosphere near the ceiling, and they will find they can scarcely breathe, and a candle will with difficulty burn; the fetid air having no means of escape, and which is worse, all this bad and foul air must descend and make its escape by a door or window. This is the evil at the National Gallery and the great cause of the mischief the pictures have sustained and will sustain till the simple remedy is applied of having ventilation flues near the upper part of the rooms. W. W.

#### MEETINGS OF SCIENTIFIC BODIES

To be held during the ensuing week.

MONDAY, May 27.—Institute of British Architects, 8 p.m.

TUESDAY, May 28.—Institution of Civil Engineers.

WEDNESDAY, May 29.—Society of Arts, 8 p.m.

THURSDAY, May 30.—Society of Antiquaries, 8 p.m.; Royal Society, 8 p.m.

FRIDAY, May 31.—Architectural Association, 8 p.m.



## TO CORRESPONDENTS.

**"J. B. N."**—Sherringham's Ventilator appears to be a very useful invention, and we should have mentioned it before now, but are waiting to speak from actual experience. The cost is trifling. The perforated panes of glass are as cheap in any quantity as in small lots.

**"Filtering Sewage"**—Several correspondents state, with reference to Prince Albert's plan, that the same idea had been put on paper by themselves.

**"Lease"**—Could the positive image (engraved), be produced at once on a wood block, ready for reversing, or must it be copied? At all events, send us one of some important new building.

**"J. B. N."**—A Constant Reader. "Another Lady." "B. F." "W. M." "P." "Justice." "A. A." "T. D." "L." "H. W." "D. J. H." (thanks: we will not trouble him to make drawings of the windows). "A Surveyor" (we cannot recommend what we have not seen). "J. B. W." (shall hear from us). "W. D." (shall appear). "Parian Cement admits of speedy painting." "A Hand-book of English Ecclesiology" (London: J. Masters); "Churches of Scarborough, Fife, and the Neighbourhood," by G. A. Poule, M.A., and J. W. Huggall (J. Masters); "Ecclesiological Notes on the Isle of Man and the Orkneys" (J. Masters); "Church Walks in Middlesex: being an Ecclesiologist's Guide to that County," by J. H. Sperring, B.A. (J. Masters).

**NOTICE.**—All communications respecting advertisements should be addressed to the "Publisher," and not to the "Editor," all other communications should be addressed to the Editors, and not to the Publisher.

## ADVERTISEMENTS.

In June will be published, in one vol. imperial 4to. cloth, 2s. to subscribers, 3s. to non-subscribers.

**DESIGNS FOR COUNTRY CHURCHES.**  
By GEORGE TROUBERT, Architect, 6, Bloomsbury-square. This work will contain a series of twenty perspective views with plans and elevations of the most beautiful and picturesque churches in the country. Price 1s. 6d.

**CHURCH WALKS IN MIDDLESEX;**  
being a Series of Ecclesiological Notes, with Engravings, in detail, of all the Churches in the country districts, in number upwards of 100, arranged in groups of from four to six, each, with a series of perspective views of the most beautiful and picturesque churches in the country. Price 1s. 6d.

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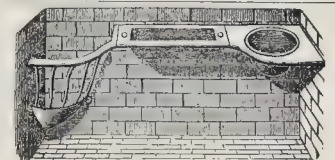
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# The Builder.

No. CCCLXXXII.

SATURDAY, JUNE 1, 1850.

**T**WO subjects of more than ordinary interest occupied the attention of the Institute of Architects on Monday, the 27th ult., namely, the presentation of the royal medal to Mr. Barry, and the question of progress in architecture. Earl De Grey took the chair; and Herr Zahn, of Berlin, who has published some fine illustrations of the decorations in Pompeii and Herculaneum, and is visiting this country to study its monuments, was introduced to the meeting.

The President, when he rose, said, that before discharging an agreeable duty that devolved on him, he must interpose a few words about himself. Fifteen times, he believed, they had suspended the standing order which provided that the same person should not hold the office of president more than two years consecutively, and had named him for that office. He was deeply sensible of the compliment, and could assert, conscientiously, that he felt as much pleasure in being of service in the capacity of their president as pride in being elected. His present duty was one of the pleasantest that could occur to him. He had been instrumental in obtaining her Majesty's testimony of goodwill to the profession and respect for art, in the shape of the royal medal. He had, at first, feared there would be difficulty in awarding it. The present was the third presentation; and he must say he thought the council had up to this time shown both disinterestedness and discretion. This year, for the first time, it was conferred on one of their own body. Then addressing Mr. Barry, his lordship said—It gives me great satisfaction, Mr. Barry, to present to you this testimony of the good opinion of your professional brethren. Your earlier works have been long known; but, as a matter of course, it is with particular reference to the magnificent work you have now in hand for the nation, that this medal is presented to you. Your great predecessor, Wren, laid the first stone and the last stone of St. Paul's Cathedral. I trust the same fate may be yours. On that building he was occupied thirty-four years; you have not yet spent half that time upon yours; and if it had depended on yourself alone, more of it would already have been done,—the means have been withheld, and difficulties have been unnecessarily created. Wren, in his building, had but one purpose to consider; you have the Lord knows how many; and what he did was for people who knew what they wanted. This is not the case with you; your masters are legion; and numbers of the gentlemen of the House of Commons, when they ask questions, positively do not know what it is they want. The Westminster Palace is at once the most difficult and most magnificent work ever attempted. The wants are so varied, and the means of supplying them were so little understood, when it was commenced, that the task is most complicated. As one of those appointed to overlook the works, I have had opportunities of seeing the difficulties in your path and the way in which you have overcome them, that others had not. I have the greatest

pleasure in handing you this testimony of the approbation of your professional brethren, and trust you may live long to enjoy the recollection of it.

Mr. Barry said, with evident feeling, he hoped they would do him the justice to believe that he was deeply impressed by the honour which the Institute had conferred on him, and the manner in which their respected president had conveyed it. It was difficult for him to speak; he begged they would imagine the feelings of pride and gratification such a testimonial must inspire in him. He felt that he owed it mainly to his accidental engagement on the greatest work of modern times. He was fully sensible of its defects as compared with the wonderful works remaining to us of the mediæval period. These defects proceeded from want of no anxiety on the subject, no absence of efforts to do better, but from the want of time, experienced by all modern architects, and of that proper frame of mind to produce with full effect the æsthetical development of a design. The difficulties thrown in the way by the executive department, too, were great, and would be understood by those whom he addressed. He would consider the receipt of the royal medal an evidence that he had not wholly failed in his endeavour to produce a fine work. Amongst all the honours which had been conferred on him by foreign academies and others, he should ever cherish this as the proudest memorial of his professional career.

The hearty cheers which he received on sitting down, added to Lord de Grey's remarks, must have served as a comforting plaster for any sore caused by the long debate in the House of Commons on the previous Friday, when Mr. Osborne, supported by Sir B. Hall and Lord Robert Grosvenor, repeated the attack on Mr. Barry, and were replied to by the Chancellor of the Exchequer, Mr. Greene, Sir W. Clay, and others. Mr. W. Cubitt, too, came out for the defence, and spoke to the purpose. He said it was easy enough to estimate the expense of a plain building, or even of a decorated building in a style which was well known and practised; but it was different when, as in the present case, there was little previous experience of the style of architecture, and no experience at all with regard to a building of such magnitude. The drawings which were originally laid before the contractors afforded no idea of the decorations which had subsequently been introduced. As to the question of how it happened that the building had become so much more highly decorated than could originally have been anticipated, he could say nothing. But as one who felt some regard for the credit of his country, and who was proud of the honour of a seat in that House, he begged to say that he thought the country did well to erect a structure, which was destined to last for centuries, in the highest style of art that could possibly be produced; and, from what he had seen of it, he had no hesitation in saying that there was no building in Europe which could bear a comparison with what the Palace of Westminster would be when finished. He did not think that a country which was under the necessity of spending between 50,000,000*l.* or 60,000,000*l.* a-year, and which he hoped would be able to afford to spend that sum, ought to grudge 200,000*l.* or 300,000*l.* for ten or twelve years for such a building.

Mr. Barry may think it fortunate that the indisposition of Lord de Grey led to the presentation of the medal being postponed till after the debate in question. One of the

charges made on that occasion, namely, that the House will not afford accommodation for the members, and that, according to Mr. Drummond, "make what alterations they please, they must at last knock down one end of it to get room," will probably be replied to by Mr. Barry.

To return, however, to the institute. After the presentation of the medal, Mr. J. T. Knowles read a paper, announced as "On the Application of Cements and other Artificially Formed Materials, to the Exteriors of Buildings," in which the writer defended, and urged, the use of cements for the external covering and decoration of buildings, maintaining their superiority over stone in many positions, for securing a warm, dry, and healthful habitation, and asserting that the work of man's mind, no matter how mean the medium through which it is expressed, should be regarded as far more important than the use of costly materials. A considerable portion of the paper was devoted to the condemnation in strong terms of the trammels, in which, as he maintained, architects were kept by a small non-professional party, and the system of merely copying the works of the middle ages. We shall print some portions of the papers hereafter, and merely say thus much as to its spirit, to elucidate our notes of the discussion that ensued.

The first who rose was Mr. Francis, who expressed his regret that Mr. Knowles had introduced into a paper on cements, matter which he must think was not in accordance with its title.\* He must in his turn protest against the doctrine that had been laid down. Cements were very useful in their place, but that was surely no ground from which to deduce the general assertion that modern architects, in emulating, or rather as he should say, endeavouring to catch the spirit of the mediæval artists were merely copyists. In the middle ages, Mr. Knowles had said, the architects of that day would not go back; the architects of the thirteenth century did not copy those of the twelfth, any more than those of the fourteenth copied them. This was quite true, and it was because they were thoroughly imbued with all that had been done, and were following out the style to more complete development. This was not the case with us. He could not help referring to the works of those who were advancing the "novelty theory," which were as bad, he thought, as anything could be, and were nevertheless copies. As to the two buildings of classical character shown by the lecturer,† they did not present a single pilaster, a single ornament, a single moulding, which was not copied from ancient examples. He considered that in our present state we could not do better than endeavour to emulate the mediæval architects. There seemed no objection to covering plain surfaces with cement, but to attempt to introduce it for enrichments and delicate mouldings, seemed to him most erroneous. He trusted that the spread of science would lead to the discovery of means of rendering ordinary building stones able to resist rain, and would conclude by asserting his conviction, that if a new style is to be formed, it would not be through the use of cement.

Mr. Scott quite agreed with the last speaker. He also agreed, he said, with Mr. Knowles in the belief that we were in shackles,—but these were the shackles of knowing too many styles

\* Mr. Knowles has since informed us that the title of the paper should have been given, as "On the propriety of the application of Cements, or other artificially formed materials, to the exteriors of Buildings."

† Exhibited simply as views of early works in cement.



and developing none. Revived Classic architecture had had plenty of time in England to develop itself (three centuries), and instead of advancing, it had worked itself down to the degraded state in which the lecturer had said architecture now was. What we wanted was a style, that if thoroughly worked out would be better adapted to the present day than the classic styles. Of what we had already done towards this he need give no better instance than the Westminster Palace, which had been referred to that evening. What we had to do was to become thoroughly imbued with that style, to make it our own, and then, with reference to all our present knowledge and improvements, to adapt it to the wants of the day. There was one inveterate obstacle to advance, and that was the use of Roman cement. Whatever might be its uses theoretically, practically it had been the destruction of our architecture. Cements might be used without being in imitation of other materials, in ceilings for example, but we did not do so, and in our fronts cement was always made to represent another material,—something better than it was. It could not be denied that our architecture had recently improved in proportion as we had abandoned the use of cement. He would further assert, in contradiction to the lecturer, that those who practised in the mediæval style were not copyists to the same extent as those who practised the classic style. Every year the former were improving: they had not wholly shaken off the trammels yet, and certainly they never would do so while they used sham materials.

Mr. Donaldson having observed, that apart from other considerations, cement is æsthetically a bad material, from its heaviness and want of variety of tint, the President pleasantly wound up the discussion by pointing out the good often produced by collision of opinions. The occasion being an interesting one, we give the following list of all who were present:—

*Fellows*—Messrs. Scoles, Selvin, C. Nelson, Bailey, Fowler, Angell, Knowles, S. Wood, J. Cole, Kendall, jun., Wyatt, Moore, Scott, Ferrey, Bellamy, Godwin, Dobson, Garling, Innis, Papworth, Thomson, Donthorn, Leicester, Bury, C. Barry, Brandon, Mosley, Enoch, Roberts, Douglas, Rendell, Mylne, Hopkins, Jennings, and I'Anson. *Associates*—Messrs. Henman, Nicholl, Burnell, Corbett, Clark, Randall, Francis, Reed, Lockyer, Beck, Oliver, Judge, Billings, Wright, Barry, jun., Forster, jun., Howell, Casant, Clayton, Buckley, Reeky, Baker, Eales, Christian, Edmund Falkner, Green, and Deane. *Visitors*—Messrs. Edwards, Hammetton, Coleman, Pitt, Winstanley, Knowles, sen., G. Knowles, Bachoffner, Abbey, Spence, C. H. Smith, Cates, Raymond Smith, Williams, Herr Zahn, Strange, Morant, Seddon, Joseph Wilks, W. Papworth, R. Scott, Wellens, Robins, G. Butger, Jas. Wilson, Abbot, Lewis, Boothby, E. M. Barry, Nicholson, Dodd, Espinet, Peck, Horne, Chalk, Hart, Langmore, Haddon, John Poy, Hampshire, Jarvis, Dillon, G. Truett, Gabriel, Mason, Allanson, Teulon, Norris, J. Webb, Hopkins, Scargill, Cowley, Falkner, Lloyd, Lewis C. Hertslet, and Col. Sykes.

**MEETING OF THE ARCHITECTURAL SOCIETIES OF NORTHAMPTON AND LINCOLN.**—The joint meeting of the Architectural Societies of the diocese of Northampton, and of the county of Lincoln, took place at Stamford, on Wednesday afternoon, last week. The Mayor of Stamford took the chair. There was a large attendance. Sir Charles Anderson read a paper on "Stained Glass." The Rev. C. Nevinsom referred to the manner in which many parish churches are mutilated by masses of unmeaning marble, and observed that the subject which Sir Charles Anderson had so ably treated, taught them a far better way of commemorating the dead, namely, by the introduction of memorial windows, which would tend also to beautify their churches. The Rev. F. P. Lowe read a paper on "Low Side Windows," and the Rev. G. A. Poole read a paper on the "Churches of Stamford."

#### THE INFLUENCE OF EDUCATION ON THE FINE ARTS.

IN tracing the progress of civilization, we find that the manners, customs, and literature of the inhabitants of the different countries have been materially affected by the respective systems from time to time pursued in their education. It is obvious that as a cultivation of the mental faculties with which man is endowed, exercises such an influence upon the position of society, it must also to a great extent affect the fine arts, which are the *attrails* by which the progress of improvement is developed. Many are the advantages to be derived from a steady course in the path of knowledge; and nowhere are its results more manifest than in the productions of those who have chosen the fine arts for their pursuit. Although intellect and genius are the gifts of a Supreme Being, and although without these gifts a man can never rise to any eminence, let the amount of labour bestowed in educating him be what it may, yet we cannot but feel that there are many bright spirits who, from want of education, are for ever condemned to exhaust their existence in the shade.

Much depends upon the expression given to works of fine art; and it is evident that this point cannot be obtained without a mental combination of the intellectual and mechanical qualities of the artist. The human face is in general the index of the soul, and the fine arts furnish a favourable opportunity for a concentration of the mental powers with which the artist is gifted. In drawing the analogy between nature and art, as we may trace upon the countenance the feelings of the mind, so are the conceptions of the artist delineated in his works.

In considering the perfection to which the science and art of architecture attained, we must remember it was Nature which furnished its first elements. It is not now my intention to dwell upon the many hypotheses which have been promulgated with respect to the origin of this art; and however conflicting the dogmas may be which have been advanced respecting them, we will find few (perhaps none) to dispute the primitiveness of its existence. It has been frequently advanced that architecture is in a great measure dependent upon the sister arts of painting and sculpture, and that it was to their intimate connection that the perfection of the Grecian classical productions must be attributed. Without being insensible to the relationship which one branch of art bears to another, or without deteriorating from the meritorious influence which they possess over each other when in combination, surely no person who has witnessed the polychrome decorations of the Grecian temples, or the elaborate sculpture exhibited in the Gothic cathedrals of the Middle Ages, can refrain from admiring the beauties which they have contributed to these edifices; but viewing painting and sculpture in this light, they are but a legitimate portion of the one which they contribute to beautify, or the *tria juncta in uno*, and were originally but the offspring of architecture. I am convinced that without the aid of the sister arts mentioned, all the principles which ennoble architecture can be obtained,—namely, simplicity, beauty, and grandeur. If one art can be considered dependent on another, I should say that which exercises the most powerful influence over all the others is poetry. It is this which furnishes us with a picturesque description of the real or imaginative, in raising man's conceptions above an ordinary level: it is this which beautifies the intellect and elevates the mind from the material to the spiritual, and, diffusing its refinement universally, causes us to appreciate the blessings we enjoy from its great and bountiful parent, Nature. There is no branch of art in which we cannot trace the powerful influence of poetry. In the productions of the painter we perceive a poetic imagination and expression; while sculpture also furnishes innumerable favourable opportunities for its introduction. In architecture, while contemplating the chastity and poetic beauties with which Grecian art abounds, or in viewing the vaulted aisles of our Gothic cathedrals, whose solemn grandeur diffuses through our souls an admiration mixed with wonder, are we not impressed with the conviction that these are not the productions of the illiterate mechanic, but have emanated from the genius and refined mind of the artist?

To the establishment of public schools for the cultivation of philosophy and the fine arts, are the great works of the ancient Greeks to be attributed; and we find that from the time a knowledge of letters was first introduced among them by Cadmus and Danaus, they by degrees acquired habits of civilization, and manifested an eager avidity for the arts. Although the present century may not produce in poetry a Homer, or in architecture and sculpture a Phidias, yet the children of the generation are by no means inferior in genius to our Grecian predecessors; and mankind being now arrived almost at the summit of perfection in mechanical science, we may reasonably blush at our own torpidity when we reflect on the encouragement given to all branches of art by the ancients. I have heard it advanced that, in consequence of the love of mammon which prevails in the United Kingdom, it is impossible the arts can receive the fostering cultivation they met with from the continental nations. In answer to this, let us take, for example, that emporium of refinement and learning, that grand central point to which the nations of antiquity flocked from all parts of the then civilized world, in pursuit of literature—Athens, and we find her not only claiming a place among the first commercial nations, but also occupying a prominent position in military enterprise, as displayed in the battles of Marathon, Salamis, Mycale, and Plateæ. However I may be inclined to censure a prevailing apathy towards the advancement of art, yet I am willing to admit that within the last few years efforts have been made by some individuals to impress upon the public mind the necessity of their cultivation, which must ultimately be productive of national benefit to the country. But, as much depends on those who wield the sceptre of authority, to exercise their power for the general good, it is to be hoped that we shall soon see Great Britain second in art, as she is in power, to no other nation on the face of the globe. The influence which legal restraint exercises in detaining the advancement of a people in art and science is too manifest to require a detailed explanation and, while the system of education is calculated either to corrupt or refine the mind, too much attention cannot be paid on the part of Legislators to this important point.

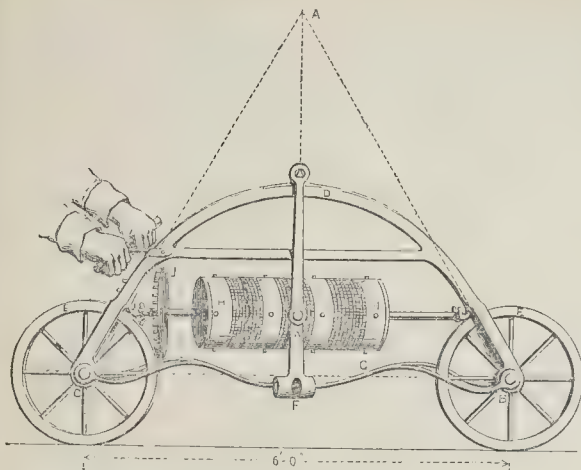
In the midst of classic Greece, that land fertile with gems of literature and art, is to be found a "barren spot," destitute of all relics by which we can trace the existence of its artistic attainments, namely, Sparta; and to what is this vast difference to be attributed, but to the respective systems of education pursued in each country. While the laws of Draco, and those of his more lenient successor, Solon (who reformed the Areopagus, and enacted that whoever lived in idleness, and did not follow some honourable and lucrative profession, should be severely punished), were calculated to inspire the Athenians with that spirit which has distinguished and immortalized their works; so did those of Lycurgus tend to instruct the Spartans in valour, and instil into the minds of the youth a desire for military achievements.

That education will form the artist or the poet I do not mean to assert—"poeta nascitur, non fit,"—but that it serves to develop all the elementary faculties which nature may supply is quite manifest. Where there is naturally a want of refinement or good taste, a large amount of education will never compensate for the deficiency; but it will exercise a considerable influence on superior intellects, as also on those which have no pretensions further than mediocrity; and although it will not give us the eye of an artist, or the ear of a musician, yet where we are endowed with the capabilities, it will cultivate and beautify them. As the fine arts are lasting memorials by which succeeding generations may form a correct idea of the civilization of their predecessors, the consideration of their being a testimony to posterity of our competency or deficiency should stimulate us, if none other will, to give them a proper cultivation and encouragement. Let us then learn to appreciate their excellence, and aspire to attain perfection in whatever department we may have selected, in doing which the surest means of success is to approach by the stepping-stone, "education."

[J. J. LYONS.]



## DENTON'S SELF-RECORDING LEVEL.



Scale, 2 feet to the inch.

## DENTON'S SELF-RECORDING LEVEL.

HAVING read in your journal of the 27th ult. a paragraph mentioning the invention, by a person in Philadelphia, of a machine for measuring mechanically altitudes, depressions, and space at the rate of 15 miles a-day, I am led to ask you to give space for a drawing and description of an instrument designed by me to perform some of the objects ascribed to the American invention, in the hope that if there be any credit due to the design, it may be secured before I can be accused of plagiarism.

My purpose in designing the instrument I now make public, was to put into the hands of the uneducated but careful foreman of sewerage and drainage works, an instrument by which he could transmit to his absent principal, infallible proof of the due execution of conduit work, in which proper inclination to the outfall is the first desideratum.

The principle upon which the level is designed is the same as I had previously carried into practice in the A level, but is here improved by the adoption of detail, by which it is made the means of recording its own operations by drawing, on sectionally-ruled paper fixed to a revolving drum, a line indicating the gradients or inclinations of the surface over which it is made to perambulate; thus enabling the draughtsman to plot a section without the aid of figures, and the engineer and contractor to calculate earthwork for drains and sewers without any section but that supplied by the instrument itself.

The use of the level may be advantageously applied to the laying of rails, and other works requiring precisely-graded inclinations; but as to the possibility of doing 15 miles a-day, with any degree of accuracy, I think it will be found an American exaggeration.

J. BAILEY DENTON.

Description of the instrument as drawn in the accompanying sketch.

D.—The frame of the level, the shape of which is governed by the figure of an isosceles triangle (A B C), the properties of which must be preserved.

E.—Wheels by which the level is propelled: the circumference of each wheel is equal to the length of the base of the triangle, i.e., the circumference of the wheel E is equal to the distance from C to B, and each revolution of the wheel covers the ground spanned by the instrument.

F.—Pendulum or plumb-line, which, when the instrument stands upon level ground, cuts the triangle directly in half, but when either of the legs (wheels) is raised above the other, gravitates towards the lower side, and thus

indicates, by the difference between the centre of the triangle and its pendent position, the hypothenusal elevation above the horizontal base.

G.—Arc upon which the pendulum (radius) travels.

H.—Revolving drum upon which sectionally-ruled paper is fixed in true vertical position, and which is put in motion by the wheel J. The drum may be shifted vertically to accord with any prescribed scale, or laterally to avoid removal of the paper.

J.—Wheel placed vertically (tangent to the wheel E), and moved by rack work at each revolution of the wheel E a given proportion of its own circumference, so as to record, in the corresponding movement of the drum, the distance perambulated by the instrument.

K.—Pencil or tracer, which marks on the paper the action of the pendulum, i.e., difference in the height of the ground or base spanned by the instrument.

## FROM VIENNA.

I ALWAYS repeat and return to an old theme, viz., that architecture is the most tangible exponent of the social life of humanity. Show me the house, the abode of a man, and I will tell you who and what he is. I cannot speak with great praise of the buildings and dwellings of this capital, which I had not visited for the last fifteen years. A great change, certainly, has taken place, which, however, I cannot approve of. Over the whole town, but especially in the inner city, numbers of the houses of the *smaller bourgeois* have disappeared, and huge piles are erected in their stead. These houses, or rather fortresses, bear no analogy to any structure existing in London. Imagine a building four or five stories high, with a frontage of ten or fifteen, nay, twenty and forty windows,—as, for instance, the great National Inn, in the Leopoldstadt. For an inn, such an erection may do better, although even then fraught with much inconvenience. But how is it, if applied to private dwellings, when it will happen that twenty families and their visitors will have to pass the same staircase? Where is then the privacy, I would fain say the sanctity, of a respectable English household? Such a house resembles, day and night, a beehive, and as the houses are quite open, none can boast of a home, but rather consider himself lodged in a market-place.

I may recur to the other effects of such huge private houses, which, if Government had foreseen them, it surely had not fostered, but, with proper management, checked their undue increase. The increase of public monuments

has not been extensive of late, but some good specimens have been put up. Amongst the first I place the beautiful fountain on the *Treyung*, a rather small and irregular cross-way of several streets; but the tactful sculptor has known what fits best this locality. The monument consists of a rather short column of considerable dimensions, round which four stems of *oak trees* (a ticklish subject for sculpture) are placed, which, however, the artist has managed exceedingly cleverly, the branches and foliage forming a sort of canopy, made in the Gothic style. Round this structure of fine white freestone are four figures of brass, of about natural size, representing some German river deities, two male and two female. The whole is surmounted by a figure resembling Minerva.

I must add, that the artist has thought of every trifle, and made of a variety of clever trifles (if such term may be used) a beautiful whole. The base of the monument—the part whence the four streams of water issue—is in the shape of a rock: this representation of an object of inanimate nature is also exceedingly well managed. And even the water itself has been made instrumental in increasing the picturesque quality of this work of art. The streams deflux at a considerable height from the ground, and, being of a breadth of about 3 inches, issuing forth in a bent shape, they appear at a distance like ribbons of crystal, to which the purity of the fluid, or their arcuated shape, may contribute. The water finally flows through a beautiful basin, made of polished greyish granite, which reminds one of the huge sarcophagi of old Egypt.

Another lately erected monument is that of the late Emperor, in the square of the palace. It has met with much obloquy, even in an artistic point of view, on account of its heavy character, &c. I do not find this criticism founded in fact, but think it a structure which may vie with the best of medieval themselves, except the statue of the Emperor, which, of course, has become now an anachronism. The surrounding four colossal brass figures are respectable, nay, ideal figures, albeit, not in the bold style of Michelangelo. Here also the polished surfaces of the fine Bavarian granite, richly chased with brass, add to the cleanliness and elegance of the structure. A very showy recent building is the county gaol and house of correction.

Most of your readers well know that the city of Vienna is a fortress, surrounded by a spacious esplanade, beyond which the suburbs extend in a circular shape. It is clear at first sight, that such a disposition is unfavourable to architectural improvement, as the latter partake always of a character of inferiority. There was many years back a plan started to pull down the bulky walls of the ramparts, and to unite the city by huge streets with the present suburbs, leaving, as in Paris, room for boulevards on the largest scale. This, however, will never be done under the present juncture of affairs. If we come to know further, that there are no omnibuses in Vienna, not even cabs, but merely some very expensive *fiacres*,—that with the exception of the city, no gas is yet in use, and this but in a few shops,—Vienna can hardly range but in the second class of the metropolises of Europe, and waits like many things of greater import, the expansion of a new time.

J. L.

## THE ROYAL ACADEMY EXHIBITION.\*

FROM the ability displayed by Mr. G. F. Watts on more than one occasion, in the competitive exhibitions in Westminster-hall, superior emanations might reasonably have been expected from him than are found in this exhibition: his academic knowledge and high feeling have been made evident. (408) "The good Samaritan" falls far short of his usual excellence: although painted expressly to idealize a portrait, there is no obvious obstacle to a less trite embodiment of the exquisite parable. (257) "Miss Virginia Pattle," a portrait, individualized by severe classical treatment, is more attractive by its eccentricity than as a production of genius.

(411) "The last Man," J. Martin: a lofty notion, conceived with that perceptive facility,

\* Continued from p. 243, ante.



and executed with the undiminished nicety that characterizes his preceding well-known works.

(369) A duplicate of P. Delacoe's "Cromwell looking at the Dead Body of Charles I." It is solemn and grand in its deep tone and full rich sombre colour; but Cromwell is deficient in character.

(438) "L'Allegro," W. D. Kennedy: one of those fanciful and crisply painted anomalies with which the artist of late has been content to delight his admirers: mannered, but, nevertheless, charmingly executed.

Mr. Ansdell assists importantly in upholding animal depiction, and invests with sentiment what are poor materials in ordinary hands. (449) "The Rivals," two stags have definitely settled their contention, and lie dead, whilst the hovering bird of prey, heedless of the ennobling cause—love—is about to take advantage of the consequence.

(481) "Jessica and Launcelot," J. Hollins, A. An indiscriminate circumstancing of two carefully-painted interesting personages, the story or subject being delightfully abstruse, were it not for the appended quotation from "The Merchant of Venice," to which the figures have not the most indirect reference. (486) "Aholibah," questionable in drawing, Mr. Armistage, but unquestionable as to taste.

(491) "The Burial of the two Sons of Edward IV. in the Tower, 1483," J. Cross. Studiously wrought, and with many fine passages; but with the "Death-bed Scene of Richard Cœur de Lion" fresh in our memory, the pleasure with which we look on the former is not unmix'd with disappointment.

In contravention to all the accepted precepts and purposes of art, Mr. J. E. Millais has produced an adaptation from a text from Zechariah, abscondently intended to represent "The Holy Family." So much has already been said in censure of the perversion of great ability, here shewn,—the affectation of endeavouring to present nature not as she is usually, but by effecting the most literal depiction of the most ill-adapted models, characterized by, it must be allowed, not singular discrepancies and deformities, and hyperbolizing certain life-like incongruous characteristics, without in the least degree endeavouring to idealize, in order to impress the notion of "truth,"—that further comment would seem ungenerous.

The theory of the newly-constituted school which includes Mr. Millais (the P. R. B.'s as they name themselves), if they would but practise in accordance, is excellent, and might be made productive of most important results, for it is not to be denied that "intention," simplicity, and attention to particular form, are considerations not sufficiently felt in our fine-art world. But this painful display of anatomical knowledge, and studious vulgarity of portraying the youthful Saviour as a red-headed Jew boy, and the sublime personage of the virgin a sore-heeled, ugly, every-day sempstress, will in no way tend to the "consummation so devoutly to be wished." The execution of the objective part of this *misconception* is unexceptionable—witness the grain in the extraordinary depiction of shavings. If the artist will adhere to this manner, there are other subjects more fitted to his love, of and great power in, imitation, requiring less refinement and appreciation of the lovable. We would suggest "The Pool of Bethesda."

(553) "A Converted British Family sheltering a Christian Missionary from the persecution of the Druids." W. H. Hunt. Another P.R.B., whose good drawing and other qualifications to become great in his profession are counterbalanced by the plagiarism from the "babies in art" to which they adhere.

The natural pathos and unaffected simple grace of (541) "Baptism in Scotland," J. Phillip, tell to great advantage; and the (525) "Too Truthful," of A. Solomon, charmingly painted,—perhaps a little too funny,—has, nevertheless, a moral and a purpose.

In the octagon room there are fewer good pictures than usual. Messrs. M'Innes, Rankley, Woolnoth, D. W. Deane, and T. F. Marshall, who are buried there, are to be pitied.

(1255) "Eather," H. O'Neil, glittering in royal robes, and conspicuous in the room nominally appropriated to architecture, wants the charm, despite the care and study obviously bestowed upon it.

The supremacy of English landscapes is amply sustained by the many exquisite contributions of Creswick, A. Lee, R.A., T. S. Cooper, A., Stanfield, R. A. Linnell (to both of whom we have already referred), Witherington, R. A., Roberts, R. A. (whose cathedral interiors are of a nature too well known to need particularising), F. Danby, A., with his promising sons, J. and T. Danby, with Linton, Harding, the Williamsses, Holland, Jutsum, Hering, Goodall, Bentley, Dighton, Bramshire, and many others who have exerted themselves more or less successfully.

(558) "The First Glimpse of the Sea," T. Creswick, A. A perfect triumph in depiction; the presence of the refreshing breeze almost made evident. (289) "In the Forest," and (427) "Old Trees," nature reflected by the same.

(474) "Christ and the Woman of Samaria," a poetical application of the superlative qualities of J. Linnell. (527) "San Pietro, near Verona," J. D. Harding. (559) "Lane Scene," North Wales, Danby. (484) "Venice," W. Linton, are amongst those that deserve and attract notice.

In the portrait department, we have, in their zenith, the veteran Pickersgill, R.A.; the powerful limner J. P. Knight, R.A.; the severe and simple Watson Gordon, A.; the elegant free-handed Grant, A., whose lady-like female portraiture strongly contrasts with his unfortunate martyrdom of his Grace the Duke of Devonshire, and the several productions of Baxter, Buckner, Mrs. Carpenter, Lucas, Mogford, Sant, Swinton, &c., strengthen this important branch most materially. In the miniature-room Sir W. C. Ross, Messrs. Thorburn, Carrick, Richmond, Hayter, A. E. Chalon, R.A., G. Jones, R.A., F. Cruickshank, and Sir W. Newton, absorb, as is their wont, a considerable share of public interest. The original, poetical, and richly-coloured portraits of Mr. Thorburn, are conspicuous amongst the miniature-paintings. Down stairs there are excellent works in sculpture by Messrs. Bailey, R.A., Macdowell, R.A., Calder, Marshall, A., Wyatt, Westmacott, R.A., Legrew, Miller, Thrupp, and others,—as beautiful and effective as the unpropitious circumstance of their being deposited in a vault will admit of.

#### LUTON CHURCH AND TOPOGRAPHY.

In your article on Luton Church, you mentioned that it had been one of the finest in the county (Beds.) It may be termed so now on account of its miscellaneous objects of interest, though not its entire architecture. It is certainly considerably the largest, and no known one ever has been larger except the Priory Church of Dunstable, which perhaps may have reached a length, with a Lady Chapel, of 300 feet. Some surprise may be expressed that no attempts have ever been made to trace the eastern foundations of this building, of which the nave and aisles, about 120 feet long, and one of the two western towers, alone remain.

The internal length of Luton Church, without the tower, is 149 feet, and with the latter 174; the breadth at the transept 100 (the same as Stafford, a fine cruciform church), of the nave and aisles 57. I believe the gross length exceeds by about 20 feet that of Hitchin, the largest church except the "Abbey" in Hertfordshire; and with that exception, or a cathedral, of any church in a contiguous county.

Luton Church tower is, as Pennant says, "prettily chequered with flint and stones." There is an excellent view of it, only flattering as to its present condition, in the "Beauties of England and Wales." Its height is 81 feet, with dwarf turrets, which appear to sit upon the angles in a peculiar manner, 8 feet higher: in the centre was a small leaded spire, as at St. Alban's Abbey, which has, I believe, been also removed. If this tower has a defect, it is as at St. Mary's, Cambridge, in a too castellated appearance: it has a good western window, and an arch doorway beneath, charged with roses. On three sides are buttresses of seven stages, exhibiting remains of niches, with a turret staircase on the south-east. The nave arch is a grand one, exhibiting clustered columns, with foliated capitals, but is now blocked up. In the belfrey were five large bells, the tenor weighing nearly 50 cwt., which

have been converted into 8, with a tenor of only 20 cwt., a poor change, with a fire-bell in one of the turrets.

The principal beauty of the Wenlock Chapel is the double arch, which opens into the chancel, of which there is a specimen in the side Lady Chapel at Ware, lately engraved in *THE BUILDER*. The arch here is very lofty (as engraved in *LYONS*); the spandril, and the space below in depth between the pilasters filled with fine tabernacle work, as the wall of the chapel is nearly covered with tracery. There is nothing of the kind in Europe much superior to this double arch. From recollection and my own measurement, the dimensions of this chapel are about 35½ feet by 25 feet, and if it be now choked with pews, it was nearly or quite vacant of any seats twenty-three years back, when the whole church was decently repaired. Beneath the arch is the altar-tomb, with effigy of an ecclesiastic of the Wenlock family, and there are a multitude of tombs and slabs in the church which must be referred for elsewhere. It may be merely mentioned, that in the above chapel is a tomb without inscription, which tradition asserts to have been erected by the townsmen in honour of Anne Boleyn, who passed part of her life at the "Hoo" in this parish. In the east window are considerable remains of painted glass, including a figure of "St. George and the Dragon."

On the south side of the chancel are stone stalls, magnificently ornamented in the spandril, with the arms of Offa, Wykeham, and Abbot Wheathampstead (of St. Albans), by whom the chancel was erected; also a fine recessed tomb. To the east of Wenlock Chapel is a lower and upper vestry, the roof of the former being groined, and supported by a column in the centre; and there is an eastern aisle to the south transept, called "Hoo Chapel," which, together, give the eastern part of the church an irregular appearance.

The Baptistery is nearly unique, and was made the frontispiece in a work on fonts; the draughtsman who visited the church in 1827 being surprised to find it in such excellent preservation. It is hexagonal, 20 feet high to the top of finial and 9 feet in diameter in the interior, much resembling a conduit or small market cross. It formerly stood at the west end, where the organ loft now is, and was painted blue and gilt, but was removed into the south transept and restored to a white colour in 1826. Over both the porches are apartments, said to have been for the accommodation of the priests. The rectory was valued at 80*l.* per annum in Pope Nicholas's taxation,—a very large sum for that period. The vicarage was formerly rated at 1,500*l.*, and is now at 1,200*l.* per annum.

Luton parish now contains nearly 10,000 inhabitants, about treble the number in 1801, the increase being principally in the town. The straw-plait trade is, happily for the poor, in a pretty good state. Paving has been some time introduced, and lately lighting in addition, and a town hall was erected at an expense of 4,000*l.* a few years back, so that the place is now reckoned a sort of second county town—a Glasgow to an Edinburgh. A chapel of ease was erected about ten years ago at East Hyde, one of the hamlets, and perhaps more might be indicated as desirable, as the parish, which extends from Toddington, Beds, to Herts, contains the very large amount of 17,000 acres, and from an old record stating that the vicar had the tithes of *all* the chapels, there must have formerly been several. At the Domesday survey there must have been much forest, probably in the southern part, as the northern is now marshy, there being pannage for *two thousand* hogs. The tolls of the market were then valued at 5*l.*, also a great sum for the period. The river Lea runs through the parish, rising in the neighbouring one of Houghton Regis, and has a tolerably long course to the Thames, near Barking.

Perhaps it is to be regretted that Bedfordshire, always respectable and now sufficiently populous, has not been able to get up a history of itself. The writer may speak less problematically of his own regret that scarcely any sympathy should have been given to the misfortunes of a person (himself) who has done more to illustrate it than any one in the present century, except *LYONS*. For a county history, however, where there is not sufficient prospect for individual risk, he proposed the following



plan, without any interested expectation, two or three years ago:—that 150 gentlemen (noblemen, &c.) should take a share of 10*l.* each, or any one several: that amount of "fund" might publish by subscription a respectable quarto volume, decently illustrated, at three guineas,—large paper, &c., five guineas,—and any profit might be given to county charities.

J. D. PARRY, M.A.

#### THE WORKING OF THE WINDOW-TAX.

WE are not about to build up anything like a concentrated superstructure of fact and argument out of the materials of so exhausted a quarry as the workings of the window-tax: our only purpose at present is to string together a few current materials, in the shape of brief notes of what is going on under this head; and, first of all, we may mention that a short discussion on "the assessed and window duties" has just taken place in the Commons, on a motion by Mr. Blackstone, in Committee of Supply, for the repeal of the additional 10 per cent. levied on these taxes for a temporary purpose in 1840, when there was a deficiency of revenue thus made up. That deficiency being now converted into a surplus, Mr. Blackstone thought it reasonable that the additional duty should be withdrawn, the more especially as, in the working of it in practice, and although it had the oppressive effect of increasing the evils produced by such taxes, the expectation of thereby increasing the revenue to a certain amount had been quite fallacious, the amount having actually diminished in successive years upon the whole, although the weight of the window-tax had been thereby increased. The additional taxation in this case had been virtually like a borrowing of money to meet a temporary emergency, and therefore ought to be given up, the more readily that—even where the taxation seemed to be one on luxuries, as on man servants, horses, &c.—the real fact was that it oppressed the poor, by diminishing the demand for their labour.

We do not much regret the negating of Mr. Blackstone's motion, which was the result of this discussion. In regard to the total amount of the window-tax, of late years, if not to the mere additional 10 per cent., it is a singular fact, that the latter, added to the previous burden, seems to have been like the last faggot thrown upon the overloaded ass, for, strange to say, it has caused a break down of the total amount between 1841 and 1847 to the extent of no less than 37,993*l.* A letter to the Chancellor, by "An Officer of the Tax Department of the Board of Inland Revenue," in noticing the decrease of 184,047*l.* on the whole of the assessed taxes between these years, says,—

"Perhaps the most striking fact which this comparison discloses is, that there should have been any decrease whatever under the head of window duty. This must, indeed, be matter of surprise to all who take into consideration the enormous increase of such towns as Manchester, Liverpool, Birmingham, Newcastle-upon-Tyne, Brighton, &c., and, above all, of the vast metropolis itself, with its wonderful suburbs. It might, certainly, be inferred that at least the window duty would manifest no symptoms of retrogression. Such are the facts, however, as published in authentic documents, patent to all, and they seem to call for inquiry and investigation. Probably the most active cause in producing a decrease in the assessed taxes, is the great abuse of exemptions, while the high rates of duty present an almost insurmountable obstacle to any increase or improvement. \* \* \* The pressure of the window duty is undoubtedly very heavy, and large numbers of individuals, even those in good circumstances, submit to great personal inconvenience in denying themselves the use and enjoyment of windows that can very ill be dispensed with, so great is their unwillingness to pay more than is absolutely necessary for window duty."

Whatever might be the result of a remodeling of the other assessed taxes, we certainly can listen to no mere modification of the window-tax. The writer quoted advocates the substitution of a house tax; but he shows the difficulties and the risks of unjust working even with such a tax.

"I beg to acquaint you," says a cor-

respondent, "that I am living in a cottage in the country free from the window tax, but to enjoy this privilege, I have two bed-rooms, a passage and staircase, a larder, a back kitchen, and a water closet, all without any light or ventilation, except what the doors when open give, and this has been for many years: this has saved 4*l.* per year, say for twenty years, which gives a saving of 80*l.*"

A "Hearty well-wisher," says,—"As the faithful champion of the profession, and also of the two trades I allude to, I propose to you to encourage a society of architects, glass manufacturers, and builders, to enforce all legal and honourable means of putting a stop to a tax on the gracious gifts of the Almighty, viz.:—Light, air, and health."

A deputation of the Metropolitan Sanitary Association waited upon the Chancellor of the Exchequer, on Tuesday last, to hand to him a resolution condemnatory of the tax which had been passed by the society, and which suggested the substitution of a house-tax, if it were necessary to supply the amount of revenue so withdrawn. Representations in support of the total repeal of the duty having been made,

The Chancellor of the Exchequer, in reply, stated that the difficulty of removing the tax was a fiscal one, and that it was not so easy to substitute a house-tax as the deputation seemed to think. He added that there were 487,000 houses which at present paid the window-tax, while there were 3,000,000 of houses that did not pay the tax. To impose, therefore, a tax on 3,000,000 of houses, borne by 487,000 only, was a difficulty that any Chancellor of the Exchequer might well shrink from. He admitted that there were many sanitary evils produced by the tax, but he could not hold out any hope of a modification of the tax this session. The more's the pity.

#### THE ACT TO REPEAL THE DUTIES AND DRAWBACKS OF EXCISE ON BRICKS.

THE following is the whole of the Act, 13th Vic., cap. ix., passed 17th May, 1850.

Whereas it is expedient to repeal the duties and drawbacks of excise on bricks: he it therefore enacted by the Queen's most excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, that from and after the passing of this Act all the duties and drawbacks of excise on bricks, and also an Act passed in the third year of her present Majesty's reign, intituled an Act to repeal the duties and drawbacks of excise on bricks, and to grant other duties and drawbacks in lieu thereof, and to consolidate and amend the laws for collecting and paying the said duties and drawbacks, shall be, and the same are hereby repealed, save and except so far as the said Act repeals any former Act or Acts, or any part thereof, and save and except also so far as relates to any of the said duties and drawbacks which have been charged or incurred, or become payable respectively at any time before the passing of this Act, and all fines, penalties, and forfeitures in respect thereof, or in relation thereto, all which said last-mentioned duties, drawbacks, fines, penalties, and forfeitures shall respectively be sued for, recovered, levied, paid, and applied in the same manner as if this Act had not been passed.

II. And be it enacted, that, by way of drawback or remission of duty on the stocks of bricks in the possession of the makers thereof, there shall be allowed and repaid or remitted to the maker or owner of all bricks which at the time of the passing of this Act are in the entered field or other entered premises where the same have been made and charged with duty, and which are in a sound and perfect state, and have not been used for any purpose, excepting for the casing of clamps, a moiety of the duty which has been charged on such bricks; and the Commissioners of Inland Revenue shall forthwith cause accounts of all such bricks to be taken by their officers, under such regulations as the said Commissioners may make in that behalf, and shall allow and repay or remit a moiety of the said duties, according to such accounts respectively.

III. And whereas various contracts have been made before the passing of this Act for the sale and purchase or requiring the use of bricks, and such contracts have been made on the assumption that the duties of excise on bricks payable by law at the time of making such contracts would continue: be it enacted, that the maker or seller of or person using any bricks by or under any such contract shall and he is hereby required, from and after the 27th day of March, 1850, to make an abatement from such contract, equivalent to the duty from which he will be relieved under or by virtue of this Act, in

respect of all such bricks which he shall send out and deliver or use under or in pursuance of any such contract as aforesaid after the 27th day of March, 1850 (that is to say), for and in respect of all such bricks, if any, which at the period last aforesaid were in the field, yard, or premises where the same were made and charged with duty a moiety of the said duty charged thereon, and for and in respect of all such bricks which shall be made at any time after the said 27th day of March, a sum equal to the duty of excise which at the time of making such contract was payable on bricks of the like description.

IV. And be it enacted, that this Act may be amended or repealed by any Act to be passed in this present session of Parliament.

#### NOTES IN THE PROVINCES.

AN appeal to the public is being made for a remaining moiety of the means to enlarge the parish church of St. Benedict, Cambridge, on plans by Mr. Raphael Brandon, designed for the completion of the restoration of the whole edifice: estimate, 2,600*l.* Meantime 100 sitings are to be added on the north side of the edifice. Upwards of 600*l.* have been subscribed by the parishioners.—The town council of Beverley have resolved to obtain an outline plan of the streets, levels, sewers, &c., of their town, to be afterwards filled up, at a cost of from 600*l.* to 800*l.*—A new prison for convicts is to be begun at Portsea this summer.—It is rumoured that the ruins of Glastonbury Abbey are about to be sold, and that it is probable they will fall into the hands of Roman Catholics, who, it is stated, intend erecting a very splendid cathedral there.—A public building is to be erected at Birmingham for meetings of religious and philanthropic societies, and for the Sunday School Institute. It is to have a hall for 1,200 persons. The cost has been estimated at about 3,000*l.*, to be raised partly by shares and partly by contributions.—The new chapel for Wesleyans, at Wednesbury, was opened on Monday week. It is said to be in the Roman style, from a design furnished by Mr. William Horton, of Wednesbury. A portal in front, 23 feet by 10 feet in the clear, forms a prominent feature. The chapel has galleries for about 700 persons. The interior dimensions are 45 feet by 45 feet, exclusive of orchestra. Ventilation is effected through enrichments in a panel of the ceiling. The builder is Mr. William Stevenson, of Wednesbury.—The chief stone of the new church at Heptonstall, near Halifax, was laid on 16th inst. The architect is Mr. Mallinson.—The ground for Loughborough Free Grammar and Commercial School is now being staked out.—The parish church of St. Paul, Derby, was consecrated on Wednesday week.

#### COTTINGHAM'S MUSEUM OF MÆDÆVAL ARCHITECTURE.

SEVERAL years ago we urged the importance of establishing a national museum of architectural antiquities, and addressed a communication to Lord Northampton on the subject, with the view of inducing the trustees of the British Museum to commence it. The contemplated sale of the collection of architectural examples made by the late Mr. Cottingham, affords an opportunity which we trust will not be lost sight of. This collection comprises original specimens, models, and casts, of many epochs and styles, arranged in apartments of appropriate character, and forms an excellent practical illustration to the study of English architecture, ecclesiastical and domestic. Amongst the more important specimens in it we may mention,—a panelled ceiling from the ancient palace of Bishop Bonner, in Lambeth, many years since destroyed; a roof of carved oak, painted and gilt, from an old council chamber of a City corporation, temp. Richard II., many years ago demolished; windows of Early Decorated work, from the destroyed church of St. Catharine, in the City; part of the fireplace, from the Star Chamber, at Westminster; a ceiling of the time of Henry VI., and one of the time of Edward III.

It is to be hoped that this collection may be purchased to form the nucleus of a national museum of English architectural antiquities, the want of which has so long been felt by all engaged in the pursuit of architecture and the industrial arts.

\* Letter, &c., on the Assessed Taxes, with Suggestions for a General Revision of the Duties.—London: Simpkin, Marshall, and Co.



## ST. JOHN'S GATEWAY, COLCHESTER.



## ST. JOHN'S GATEWAY, COLCHESTER.

AMONGST the several remnants of early times to be found in Colchester, Essex, are the remains of St. John's Abbey. The gateway of the abbey represented above is an interesting specimen of flint-inlaying, so to speak, more common in Norfolk: it is of the perpendicular period. The Castle, Trinity Church, and the remains of St. Botolph's priory are the other chief antiquities of the town.

About a mile from Colchester there is a very peculiar water-mill, the property of Earl De Grey, situated picturesquely on the side of a pond called Bourne Pond. From the date, which is clearly visible on the south side, it appears to have been built in the year 1591, by one Thomas Miles. It is of bizarre design, more curious than beautiful. A correspondent (C. H.) says,—It was probably erected for the manufacture of baize, which was at that time a staple article of commerce in Colchester, but has since been converted into a corn-mill, and a small steam-engine attached. The stonework has a peculiar inlaid appearance, owing to the mortar between the interstices of each stone being filled up with small pieces of flint.

## THE UNFORTUNATE MARBLE ARCH.

THE suggestion, offered in *THE BUILDER*, that the marble arch, though removed, as it necessarily must be, from its present position, might still be preserved as a grand entrance to the palace, if set up again in another position facing it,—appears to be that at length adopted, to a certain extent, by the Government; but, although they have also in view the idea of placing it so that the avenue leading through it to the palace shall be the central mall in the park, they have not ventured to carry out the main principle of that suggestion—namely, the opening up of such an entrance right through from Charing-cross, although even this had been resolved upon by Lord Lincoln while at the head of the Woods and Forests. Indeed, from a discussion in the Commons on 24th inst., on a vote asked for 14,672*l.* to form a public flower-garden in front of the palace, and an ornamental enclosure, with palisade as formerly, in its more immediate precincts, the whole to be laid out as one design in connection with the re-edification of the arch,—it was stated by Lord Seymour that the central mall would be crossed by the arch about opposite to Stafford House. The estimate of the whole plan amounts to about 26,000*l.* Of the

14,672*l.* now wanted, 4,000*l.* are for removal of the arch, 6,000*l.* for iron railing, 650*l.* for cost of designs and architect's commission of 5 per cent., 3,500*l.* for ground works of the garden, and 350*l.* for clerk of works' salary. A difference of opinion arose (as well it might) as to the appropriateness of the precise place at which the arch was proposed to be set down, and the Chancellor of the Exchequer, admitting that great care ought to be taken to place it in the best possible position, withdrew the proposal, that full time might be given to form a deliberate opinion on the point.

Unless with a view to further removal at some future period, where can be the utility of transferring this hapless structure to the proposed site in front of Stafford House and the Stable-yard?

Why not, now that the late Queen Dowager's stables are no longer of use, finish Carlton-terrace, and make a handsome opening from Trafalgar-square to the park, as often before urged, with the arch for an entrance. This would complete the avenue from Trafalgar-square to the top of Constitution-hill, with a noble architectural design at each end.

The objection to such an arrangement on the score of expense, resolves itself into the



## TRINITY SCHOOLS, MARGATE.



absurd fallacy of rearing a handsome structure, and begrudging the needful cost of a suitable site and approaches to display it to full advantage.

If some of our economical legislators could bestow more attention in securing to our national works the utmost completeness of design in the first instance, and then address themselves to reducing the estimates to the lowest cost compatible with the carrying out of this principle, the public would have less reason to complain of the misapplication of the funds devoted to such purposes.

As it is, with all our boasted love of the arts, and the continued advancement of the great bulk of the people in knowledge, and civilization and taste, many of our more popular leaders seem determined to act rather as checks and drawbacks upon this spirit, than as guides and helpers to its full development. Such works are necessarily attended with great cost; but as manual labour enters so largely into their construction, the industrious mechanic and artisan has his full share of the advantage, and there is no music so grateful to his ear, or conveys more solace to the heart, than the sound of the hammer or the chink of the trowel. After all, what seems chiefly wanting to secure to the community the full benefit of labour thus employed on behalf of the public is, less of the partisan, and more of the statesman spirit among our legislators.

**ANCIENT PICTURES.**—A portion of a very interesting collection of ancient pictures, made chiefly in Italy, by the late Mr. John Noble, F.S.A. is to be sold by auction on the 11th. It includes a grand picture by Guido, "The Birth of St. John," from the Zampieri Palace, at Bologna, which ought unquestionably to be obtained for the National Gallery, and some capital examples by Breughel, Mignard, Ruysdael, A del Sarto, Vasari, and Canaletti.

**MONUMENT TO COWPER.**—It is proposed to erect a monument in honour of Cowper the poet, in Westminster Abbey, from a design by Mr. W. C. Marshall, A.R.A., exhibited at the Royal Academy in 1849.

## TRINITY CHURCH SCHOOLS, MARGATE.

For a length of time past there has been a great want of school accommodation in Margate, the only schools which afforded any education to the children of the poor being those in connection with St. John's Church: great efforts have of late been made to supply this want. On New Year's Day, schools were opened for the accommodation of about 400 children, to be educated on what is known as the British and Foreign system, and open to every religious sect: these schools were erected under the superintendence of Mr. Caveler, who is now engaged in the erection of schools, with a residence for a master, in connection with Trinity Church: of the latter we present an engraving. The boys' school, with the adjoining class-room, will accommodate 172 children; the girls' school, with its class-room, 128. Each school will have a lobby for cloaks and hats, and a yard in the rear, with all requisite offices. The master's house will consist of a living-room, kitchen, scullery, and three sleeping-rooms, with yards and offices in the rear.

The buildings are of brick, with stone dressings: the school-rooms will have open timber roofs, covered with white tile. The whole expense of the building (exclusive of the cost of site) will be 1,033*l*.

**CALF TORTURING.**—In addition to the information given in the "Day in Derby," you may state that the days of the "calf torturer" are numbered there. A letter, which appeared in your columns some months since, was copied into the *Mercury* and *Reporter*, and has called up a discussion and paper war. The result is, that the butchers have come to the determination of killing *veal* as they do *mutton*, and they call upon the public to support them in their resolve, being themselves disgusted by the extreme agony endured by that innocent animal. Thus, Mr. BUILDER, the remarks in your pages work good in many ways; and not only improve and exalt the status of the profession, but refine and purify the mind of the public.—WM. WIGGINTON.

## FRENCH FURNITURE IN ENGLAND.

I AM anxious to draw your attention to a growing evil, affecting the manufacturing and working classes of this country to an enormous degree. I refer to the daily sales of French household furniture, decorations, &c. The people of this country have no idea of the extent to which the system is carried and encouraged by a great many who are going about the land crying out for protection. Many a manufacturer mourns in silence, afraid to complain; while the working classes are perfectly ignorant of what is going on at the different auction-rooms at the west-end of the town.

Whether articles which I recently saw knocked down could be produced in this country at the prices sold is a question, but that the nobility and gentry pay more for them than for articles of the same kind of English manufacture is certain, passing, as they almost invariably do, through the hands of several parties, who must each derive a profit. The infatuation which possesses the higher classes, and many of the middle classes too, with regard to French furniture, is extraordinary, for nothing but the metalwork saves it from total condemnation, as its workmanship is very indifferent and its character devoid of the slightest novelty. In a recent sale I could have shown that every attempt of that quality was a signal failure, particularly as regards plain simple furniture, of which the English manufacturers are obliged and do exhibit a constantly varying stock to please their customers, far surpassing in novelty of design and goodness of workmanship the furniture of any country in the world. I do not refer to what is seen in shop windows, but to what is quietly made by respectable manufacturers; but they cannot get the metalwork which produces, like the serpent's eye, the fascination, nor can they get their china with its beautiful blue, but wretched groups of showy figures—there's the rock on which they split,—but showing that we only want modellers and brass manufacturers to beat our neighbours out of the field. Their ornamental modellers and china painters certainly excel ours, but



even their boldness of execution is not accompanied with novelty, and with all these disadvantages it must be likewise acknowledged that English stoves are far superior to the French in every respect. In this sale referred to, bracketed pilasters of former times still held on, and if the bronze candelabra had any new feature it was entirely owing to a change in the countenance of the little fat boy holding immense bunches of lilies: the china had still the Louis Quatorze mountings of centuries ago, and the chimney-pieces were in keeping; but there was no research, not near so much as in many a beautiful piece of plate executed in this country. The French artists have not made the slightest progress in the designs of the articles mentioned, in this generation, while the character of the same has improved wonderfully within these 20 years in this country. The unqualified encomiums which are lavished on the former are absurd, and enough to make one cry out with Marc Antony, "Oh, judgment, thou art fled to brutish beast, and men have lost their reason." But, allowing the French to be perfect in every respect, still to encourage their manufacturers at the expense and ruinous injury of our artizans and artists, is unreasonable and unjustifiable.

H. WHITAKER.

#### COMPLETION OF SOMERSET HOUSE.

WHILE Government are paying large rentals for private houses, in all parts, for the use of Government offices, which, by this means, are necessarily separated and inconveniently placed, there is a space (at the north-west corner) in this fine public building, devoted to public offices, left an unemployed and useless eyecore, reflecting discredit on the age. Whenever it be built on—which I hope will be soon—it will, of course, be in strict keeping with the present structure, cased entirely all round with Portland stone, placed centrally with the two ornamental gateways, and an exact counterpart of the northern wing of King's College, at the opposite or east end of the vista.

While on this subject, let me express a hope that the entire western face of this building, formerly merely a back front, but since the formation of the approach to Waterloo-bridge, one of the principal façades, will be long be decorated with a handsome stone front, worthy of the pile, in perfect unison with the present river front. This, by the way, would form a very excellent subject for drawing out the talents of some of the junior members of the architectural profession.

SPES.

#### A FEW WORDS ABOUT A FEW THINGS.

We are glad to be able to state, with reference to the Portsmouth statue of the Duke of Wellington, that the Gallic cock, foolishly placed under the foot of the Duke, has been obliterated, as we recommended.—The other night Mr. Hope very properly protested against the insecure state of the public records, and the Chancellor of the Exchequer re-announced his intention to propose a vote for the erection of a proper building to contain them.—St. George's Hospital, Hyde-park-corner, was on fire a few days ago, and the safety of the whole building threatened. Had the fire spread, the result would have been dreadful. All such structures should be fire-proof.—The palace at Claremont was in a similar position at nearly the same time. On taking up the flooring of the dining-room the girders and bond timbers were found in a complete blaze. It was evident the fire had been smouldering some time; the beams were burned almost through. The origin is attributed to the overheating of one of the flues.—A Bill has been introduced authorizing the advance of money to the extent of 2,000,000*l.* for Great Britain and 200,000*l.* for Ireland, for the improvement of land by drainage, erecting of farm buildings, &c. It also authorizes the advance of 800,000*l.* for works of public utility in Ireland.—The Metropolitan Interments Bill has passed through committee *pro forma*, for the purpose of being reprinted with amendments.—A fine statue of Eve, sculptured by Powers, the

American artist, was recently lost on the Spanish coast by the wreck of the vessel on board of which it was placed.—A number of "navvies" employed on the Vale of Neath Railway have wantonly overturned, the well-known Logan or rocking-stone, which was situated near Sewd Wladis waterfall. The stone, which is supposed to weigh about 20 tons, was balanced so nicely that the merest touch only was required to shake it. Such stones were at one time employed as ordeals for persons accused of crimes.—A magnificent incense burner is about to be presented to the Pope from the clergy of France. It is stated as an innovation worthy of remark that the names of all the workmen employed in the chasing, as well as the manufacturer of the article, have been engraved on the inside of the cover.

#### CONVERSAZIONE AT ENGINEERS' INSTITUTION.

ON Tuesday evening last Mr. W. Cubitt, the president of the Institution of Civil Engineers, gave the usual annual *conversazione* in Great George-street, Westminster, which was attended by an immense number of persons.

Objects of art and science abounded, and the evening passed off most successfully. Amongst the models exhibited (under pressure from without) may be mentioned Appold's register hygrometer, Symon's patent weighing crane, Mon. Soyer's "magic stove," Le Moll's electric light apparatus, &c. &c. Mr. Moxon exhibited some imitations of marbles and inlaid woods, of extraordinary excellence. We have had occasion before this to speak of his great skill as a grainer and imitator of marbles.

#### METROPOLITAN COMMISSION OF SEWERS.

At the last special court, Sir J. Burgoyne in the chair, the court granted 4,600*l.* for works for the drainage of Victoria-street, Westminster, and 1,410*l.* for similar works in High-street, Camden-town. A presentment was made relative to the filthy and dangerous state of Carrier-street and Church-street, St. Giles's. The court ordered notices for drainage to be served within fourteen days. The condition of certain portions of Southwark and Bermondsey next engaged attention. Mr. Foster and Mr. Grant recommended that owners of property there be called upon to introduce improvements. In connection with these districts the following works were ordered:—Laying down pipe sewers in line of open sewer, Long-lane, Bermondsey, 75*l.*; ditto in Wickham-place, Southwark, 50*l.*; ditto in Anne-street, Southwark, 60*l.*; ditto between Clarendon-street and Henry-street, Southwark, 20*l.*; ditto in Hunter-street, Southwark, 25*l.*; ditto in Farley's-yard, Old Kent-road, 45*l.* The covering of the open sewer between Gravel-lane and Green-lane, Christchurch, Surrey, at a cost of 35*l.*; the laying down of 160 feet of culvert in the line of open sewer near the Bedford Arms, Clapham-road, and of 132 feet of 18-inch barrel drain near same place, at a cost of 60*l.*; and the covering of 120 feet of open sewer between South Lambeth and Wandsworth-road, at an expense of 35*l.*—were then agreed to.

A vestry was held in Westminster, on the 27<sup>th</sup> ult., to consider the expenditure of the ratepayers' money by the Metropolitan Sewers Commission, when a resolution was passed to the effect that the parish has great reason to complain, not only of the increased cost of the commission, but of the little they have done,—evils they attributed to its defective organization; and that a petition, therefore, be presented to Parliament, praying for local representation in the appointment of commissioners. The Hon. F. Byng, in addressing the meeting, adverted to the manner in which he, Mr. Leslie, and other members of it, had struggled to counteract the extravagance and recklessness of party in the court,—to Mr. Hertles' resignation,—the treatment of Mr. Phillips, and of the Westminster Improvement Commission, and other grievances. The Hon. Mr. Vernon Smith, and others, also addressed the meeting.

#### MASONS' PROVIDENT INSTITUTION.

A PUBLIC meeting of this commendable institution was held in Exeter Hall on Tuesday last,—Mr. Tite, the president, in the chair,—for the purpose of explaining its principles and progress amongst the numerous members of the trade throughout the metropolis, and calling on them to extend their support to its very desirable objects.

The lower room of the building was pretty well filled, at least towards the close of the meeting, and all appeared to listen attentively to the explanations and exhortations by the various speakers.

The Chairman, in the outset, called on the secretary to read the last annual report of the committee, from which it appeared that the institution is now in the fifth year of its existence, with about 140 annual subscribers, and 300*l.* collected by subscription and donation, which they were very anxious to increase as much as possible before the next half-yearly meeting in July, when they ought to be able to do something for their poorer or more unfortunate brethren, or their widows or orphans.

The object of calling you together this evening, said the President, is to explain to you the good to yourselves derivable from such an institution as this, and to urge you, therefore, to put it at once into active operation. Till the favourable opinion of the trade be practically ascertained, the committee have resolved not to proceed to distributive measures. They call on you, therefore, to increase the comparatively handsome sum already in hand, and to enable them to make a fair start, by once for all seconding past endeavours by a long pull, a strong pull, and a pull altogether. Your exertions are wanted for behoof of yourselves. Your best reliance is, depend upon it, self-reliance; for when those above you see that you are fairly roused into a provident spirit, they, too, will be happy to second your humble but hearty endeavours to help yourselves. And all that is asked of you is to contribute the small sum of 2*s.* 6*d.* a-quarter, and with that from a sufficient number of subscribers, it is hoped to build some almshouses—a comfortable retreat for those of you who may come to require it,—to distribute a considerable number of pensions, and to assist those injured or disabled by accident, and the widows and orphans of those of you who may happen to be prevented by death from providing for your families. The laws of the institution were then explained in detail by the chairman, and one of the first objects to be attained pointed out, namely, to provide pensions of 7*s.* a-week to as many poor members as possible in the mean time, till an asylum can be erected. Other institutions of a similar kind, now in a prosperous condition, continued the speaker, set off from as small beginnings as yours. The Bookbinders' Provident Society, for instance, begun in 1839, collected not much more than you have done in the same time. The bookbinders relied on themselves, and they succeeded. They began with 100*l.*, and have now paid to pensioners no less than 3,640*l.*, besides erecting a nice row of almshouses. They have cherished the old age of forty-four pensioners by this active system of self-reliance, besides other ten inhabiting their almshouses, and over and above have 1,100*l.* at present in hand. Beginning with 300*l.*, then, it is my deep conviction that you will, with the same spirit, attain to the same high position. Put your own shoulders to the wheel. To this he urged them, because he felt the importance and necessity of a trade uniting in such a spirit to help themselves. There were at least 2,000 working masons in the metropolis, and they had a right to expect at least a third of these annual subscribers, and then they would soon be able to do all that the bookbinders were doing, after nineteen years of labour. He was happy to see some of their wives and daughters present—those who might become widows and orphans. He earnestly hoped they would use their influence in the encouragement of a provident spirit, that would enable them to see these benefits realized for those who might require them. He trusted, ere long, to see a masons' asylum amongst these many attractive buildings of a similar kind which may already be seen along the line of every railway radiating from the metropolis.

The first resolution,—"That the Masons' Provident Institution having assumed a prominent position through the exertions of its present supporters, and the time having also arrived at which the project may be carried into operation, this meeting pledges itself to assist in every possible manner the objects of so valuable an institution," was moved by Mr. Easterbrook, who exhorted the masons present to come forward and put down their names as subscribers,—and seconded by Mr. Thomas, who complained of the apathy of the working classes when exhorted to come forward and assist each other and benefit themselves in a provident spirit. It was no sordid spirit, he believed, that prevented this, especially when so paltry a sum was in question. It was a reckless carelessness, he feared, of their future prospects. Charity, it was said, began at home. Be charitable then to yourselves. Think for yourselves. Such apathy as that



alluded to it was sad to see. They ought by this time to have had two-thirds of them on the list of subscribers. He should have rejoiced to have seen the gallery filled with those most likely to urge and rouse them from their apathy. They would have the patronage and help of masters, architects, and others generously disposed, were they only to patronise themselves. Till then, how could they have the audacity to look to any one for patronage. The price of a pint of beer a week would suffice—was all the patronage they required: who could not afford that? He did not ask them to do what he had not done himself. He and others had been labouring for four years to bring this institution into tangible shape, and now they only wanted their fellows to come forward and assist for their joint behoof, and success then must crown their efforts.

Mr. Payne supported the resolution in an animated speech. This was the seventy-fourth time he had stood on a platform, always with something like a good object, within a very short time, and he hoped his seventy-four would go off with a good report, and cause the most obstinate to give in. Masons were most useful in building asylums and hospitals for others: why did they not help to build their own? They were a good body, with a good head, and, to crown all, a good subscription. Much was said about free and accepted masons—let them only come forward, and they would both be accepted and free in self-dependence, without those mysteries which excited so much curiosity even in well-regulated families. The cleared, in old age, would be free from anxiety and care, and have no fear of rattling their bones over the stones in pauper coffins. A junction of hands was wanted. Let them put these hands to the windlass, and heave with a will, and they would soon have a structure reared that they would be proud of. It was the glory of this country to have provident men, who will look on their neighbours as their brothers, and teach the extension of such brotherhood over the whole human family. The anecdote of a poor man, who placed on his cart, his only property, the motto, "Who can tell?" and only changed that motto for "Who would have thought it?" when by industry he had exchanged his cart for his carriage, he hoped would apply to the plan of the Masons' Provident Institution. If it did not, it certainly would not be the fault of their worthy president. Of another eminent architect, Sir John Vanbrugh, it was said,—

"Lie heavy on my earth, for he  
Laid many a heavy load on thee."

And the philanthropic spirit of the excellent head whom they had set on their own shoulders, entitled him to travesty such a motto thus—

"Lie lightly on him earth, for he  
Made many a heart feel light on thee."

He trusted ere long to see the Masons' Provident Institution and Asylum assuming such a rank as it was pre-eminently entitled to assume, and would only now conclude by saying—

'Tis good the praise to win,  
Of science and the arts;  
'Tis better to be shrin'd within  
The love of humble hearts.

'Tis much to rear a pile  
That lifts its head on high;  
'Tis more to wake the cheerful smile  
That lights the labourer's eye!

'Tis great to build th' Exchange,  
Whose fame shall never cease;  
'Tis greater to expand the range  
Of human joy and peace.

In long-enduring tomes,  
Renown with firmness writes,  
The architect of happy homes,  
The inventor of delights!

Wise are the plans you see,  
Designed your race to bless;  
Hold fast, hold life, and you will be  
Quite certain of success.

Mr. Lushington, M.P., next addressed the meeting. By way of encouragement to their exertions, he would instance the success of one amongst many such institutions, one to which he himself belonged: the referred to the National Provident Institution. It was on a more enlarged and extended scale, but quite on a similar principle. It had succeeded beyond expectation, and why? By being hearty and earnest in the cause. Its members saw how desirable an institution of that kind was. In a comparative degree, and with a like spirit, they had a right to look for success, and would not be disappointed. He was not of those who are ever preaching extraordinary self-denial to those who had great privations to endure. But a little self-denial which might enable them to provide for those dearest to them, or to mollify the evils of accident and old age, was well worth inculcating. And what class of men was more obnoxious to accident, fatal or otherwise. One speaker had said he did not ask them to do what he would not

do himself; but he, as one of another class, had often to ask them to do what he could not do even if he would,—to delegate to them such perils as he and his class would not willingly encounter, even were they capable of doing the onerous duties in the exercise of which their lives so often stood in jeopardy. It was his duty, therefore, to come forward in aid of their provident endeavours to obviate or qualify the evils but too often arising from such accidents, by promoting the success of this admirable scheme. There were many institutions of this kind already in existence, and he was delighted to find all so successful.

Mr. Godwin moved the second resolution:—"That in order to carry the foregoing resolution into effect, the parties present are respectfully urged to enter their names immediately as annual subscribers, as much will depend upon the exertions of the trade in enabling the promoters to carry the objects of the institution into full effect, and they are also solicited to use their individual efforts to obtain subscriptions, and otherwise promote its interests."

In the course of his remarks the speaker said the economy with which the institution had been managed was very admirable; but if the sum spent was small, unluckily that received was so too, and it did seem to him worthy of consideration whether or not advantage would result from the junction of this society, the Foremen's Institution, and some other similar bodies, with the "Building Operatives' Provident Institution," recently established. He concluded by asserting the claims which able and upright artisans had on the public.

The resolution was seconded by Mr. Piper. He was one of them, and working for himself, as he hoped all present would do, by looking forward to the future, and making provision for the evil day, that they might enjoy the present moment all the more. Let them throw the risk of individual accident, and of future want of food and shelter, on this their own society then, by paying manfully for it now, while they were able; and this they might do at present expense of little more than 2d. a-week, in return for which they might claim a right of candidature as their own, and what they had fairly paid for to keep them out of the future position of mere paupers, and to foster a feeling of honest and upright, even though humble, independence. He felt a right to be proud of his business as a mason, as had they all, when they looked on the splendid monuments of their art, erected both in the present time and in times gone by, in this metropolis and elsewhere, and when they read of the remains of the works of their fellow-masons and sculptors in long-gone ages, such as those that Dr. Layard and others had been opening up. Let us build up wise provisions for the future. The want of institutions such as this has helped to unhinge the whole framework of society on the other side the Channel. What great and fearful peril and suffering might have been avoided by provident institutions such as this! He trusted they would think well and seriously of all that had been said by those who, they might depend on it, were their best of friends, in advising them to help themselves by provident habits, to however humble an extent.

Mr. Freeman, the treasurer to the institution, spoke in support of the resolution. He could see no reason, he added, why the Masons' Provident Institution should not be equal to any in existence, were the trade only to acquire a feeling of providence for their families and do a little for their own future good.

Both resolutions were unanimously passed, and thanks voted to the chairman, patrons, and office bearers, after which there seemed to be some anxiety on the part of various individuals in the meeting to press forward and add their names to the list of subscribers.

### Miscellaneous.

ST. MARY'S, JOHNSON-STREET. — This church was consecrated on Wednesday, the 22nd inst., by the Bishop of Winchester, in the absence, through illness, of the Bishop of London. The church is dedicated in honor of the Virgin Mary, and has been erected and endowed at the sole expense of Lord Haddo. The cost of church and site has been about 7,500*l.*, independently of a liberal endowment. The church consists of nave, north and south aisles, and chancel, with a tower and spire, at the south-east angle, about 160 feet high. The style is early pointed; the material for the walls Kentish rag, and Bath stone for all the dressings. The only gallery is at the west end for children; the accommodation provided is for about 1,000, 800 of which sittings are free to the poor. The organ is placed in the tower, over the vestry. The architect was Mr. F. J. Francis. A parsonage house will be shortly erected; ground for it has been purchased closely adjoining the church.

PROJECTED WORKS.—Advertisements have been issued for tenders, by 14th inst., for the several works required to be done in erecting a farm-house at Hanington, near Halcot, Northamptonshire; by 4th, for building a main brick sewer, 2,020 feet long, at Whitehall and Parliament-street, for the Metropolitan Commission of Sewers; by 7th, for between four and five thousand yards of gas mains, with bends, &c., for the Ruthin Gas Company; by 3rd, for altering the Guildhall at Southampton; by a date not specified, for the erection of national school-rooms at Southampton; by 11th, for the supply of 260 tons of cast-iron sleepers, on Mr. Barlow's plan, and 12 tons of wrought iron ties and fastenings, for the Eastern Counties Railway; by 10th, for a new purifying apparatus for the Boston Gas and Coke Company (extension of time); by 3rd, for supply of passenger carriages for the East and West India Docks and Birmingham Junction Railway; by 4th, for the proposed works in rebuilding the Nest-bridge, Ellingham, Northumberland; and by 17th, for works connected with carriage ways at Bristol.

DR. FARADAY ON CHIMNEYS.—At the Royal Institution, in a series of lectures on chemistry applied to domestic purposes, Dr. Faraday lately lectured on "a chimney." Various illustrations were given to show the importance of the functions of the chimney. A parlour fire will consume, in twelve hours, 40 lb. of coal, the combustion rendering 42,000 gallons of air unfit to support life. Not only is that large amount of deleterious product carried away and rendered innocuous by the chimney, but five times that quantity of air is also carried up by the draught, and ventilation thus effectually maintained. The force of a draught was illustrated by a descending flue. A coloured flame was held near the end of a tube bent like an inverted syphon. As soon as the tube was heated, the ascent of the air within the longer arm of the tube drew the flame downwards into the shorter arm with considerable force. Since the ascent of smoke up a chimney depends on the comparative lightness of the column of air within to that of an equal column without, the longer the chimney the stronger will be the draught, if the fire be sufficiently great to heat the air; but if the chimney be so long that the air is cooled as it approaches the top, the draught is diminished. A case of this kind occurred at a lighthouse on the Isle of Portland. The chimney which ventilated the building and the lantern was carried on the outside, and in winter time the draught was so much impaired that the windows became dim and the lights obscure. An attempt had previously been made to remedy the defect by lengthening the chimney, but that, of course, had made it smoke all the more. The application of a jet of steam to increase the blast of locomotive engine furnaces was illustrated. The lower end of a bent glass tube was placed in a dish which contained coloured liquid, the upper end being inverted into a larger and horizontal tube. A jet of high-pressure steam directed through the larger tube caused such a rush of air to supply the place of the air expelled by the steam, that the coloured liquid rose to the top of the tube. The mechanical force of a jet of high-pressure steam was shown by causing it to sustain an egg, which was seen dancing about in the air without anything apparent to support it.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—Repairs long needed at the Ophthalmic Hospital, Charing-cross, and delayed for want of funds, are now being made. This valuable institution was established in 1816, for relieving the poor of every description labouring under diseases of the eye, and since then seventy-seven thousand seven hundred and seventy-one persons have availed themselves of the benefits of this charity! Of these no less than 1838 have been restored to sight by the operations for cataract and the formation of an artificial pupil. 4,870 persons have been admitted to its benefits during the past year, of whom 240 were in-patients. The hospital has still two wards closed, capable of containing ten persons, but who cannot be received for want of funds, a lamentable fact in a metropolis like London, where hundreds of unfortunate persons are deprived of the means of obtaining a livelihood for want of sight. This simple statement makes a strong appeal.



**RAILWAY JOTTINGS.**—The calls for May appear to have been only 386,399l., against 1,071,088l. in same period last year; 3,246,848l. in 1848; and 3,440,675l. in 1847. The total amount called from 1st January to 31st May, 1850, is 5,444,147l. The cast-iron girders over the bridges on the Manchester, Sheffield, and Lincolnshire line, are being replaced by others, also of cast-iron. The Great Northern, says a cotemporary, have lately had works constructed for full 30 per cent. lower than the engineer's contract prices. In the London goods and temporary passengers' station, for instance, the contracts have been let, and the works are in course of construction by responsible contractors, for prices ranging from 20 to 30 per cent. lower than the engineer's scheduled prices; and yet the engineer made his estimate of the price at which the work should be done, when the market price of materials was at about its lowest. Mr. Brunel, the engineer of the Oxford, Worcester, and Wolverhampton, is understood to have submitted to the Directors a guaranteed estimate of the cost of constructing the entire line within twenty months, at less than 20,000l. a mile. The Midland Company are about to contract for working the Leeds and Bradford and the Bristol and Birmingham lines. The bridge by which the Dean Forest line will be carried across Worcester-street, Gloucester, is now in progress of construction. The tenders were opened on 14th inst., for the first 26 miles of the St. Andrew's and Woodstock (Canada) Railway, when it was found they were too high, 12,000 dols. a mile being the terms; they were consequently rejected. A subsequent agreement, however, was made with some of the parties tendering for completion of the first 15 miles, considered the most difficult and expensive. The remainder, it is expected, will be done at a lower rate. A locomotive is expected, to be sent out this summer from this country.

**INTERMENT BILL IN LONDON.**—The Common Council of the City accept the principle of the Bill, but seek to exempt the City. A committee has prepared a Bill, to be submitted to the Home Secretary, proposing that all interments shall cease in the City and liberties on 1st July, 1851. A sufficient cemetery to be provided. Compensation to be given to present incumbents only, on three years' average of receipts, not five, as proposed in Government Bill. Compensation on same principle to be given to other officers. The burial arrangements to be under control of an unpaid committee. A cemetery to be formed within five miles of the City, and families to have power to bury as they think proper, while cheap burials are provided for those who choose. Reception-houses for the dead to be provided, but no one compelled to deposit a body there, except in extreme sanitary necessity. The moneys required to be raised on credit of the City seal.

**ELECTRO-TELEGRAPHIC PROGRESS.**—Russia, it appears, as far as St. Petersburg, will shortly be placed in electro-telegraphic rapport with London and England. The emperor has decided on placing St. Petersburg in communication with Vienna and Berlin by electric telegraph through Warsaw and Posen. The wires are now being laid between Berlin and St. Petersburg and St. Petersburg and the Black Sea. The submarine section between Dover and Calais will be completed and opened by the end of the present month. Great things are reported of Henley's magneto-electric telegraph. A striking and successful experiment, it is said, has just been made under the direction of the French Government, to test the efficacy of this telegraph, which is worked without batteries of any kind, and at a fraction of the cost of the voltaic system. On the line from Paris to Valenciennes, a distance of 180 miles, and the longest telegraphic line in France, after a most satisfactory series of trials on the single distance, first with the full power, and afterwards with 1-20th of the power, the wires were connected so as to treble the total length of wire, making 540 miles to and from Paris and back—the magnetic message being communicated through the first wire, back by the second, through the third, and back again by the earth. It was not anticipated that the magnet alone could possibly work through this enormous resistance, but it is alleged it

worked as distinctly and rapidly as when only made to traverse the 180 miles with full power. The ordinary telegraph with battery power, used by the French Government, was then put in requisition, but not the slightest effect, it is said, was produced. From evidence before a Parliamentary committee, it appears that the railway mileage open with the telegraph throughout the British Isles is 2,215 miles: open without the telegraph 3,781 miles. The number of telegraphic companies in America amount to 22, covering 10,000 miles. The lines of telegraph completed in France extend over 620 miles, and those in progress over 899 miles. The total completed line of telegraph in Germany is estimated at 2,468 miles, and the range in progress of construction at 1,210 miles.

**ARCHITECTURAL LECTURE AT EXETER.**—At the Exeter Athenaeum, last week, Mr. Ashworth, who has been recently engaged in the restoration of Collumpton Church, gave a lecture on "Anglo-Gothic Architecture." The lecture, which was illustrated by more than eighty large water-colour drawings and diagrams, embraced a very considerable period of the history of church architecture, commencing with the basilicas of Constantine, their rude interior colonnades, selected and supplied from ruins of heathen temples, where the edifices were actual palatial halls of justice turned into churches—the prætor's judgment seat, in a semi-circular recess, being converted into the episcopal throne, and the raised space, occupied by advocates and notaries, changed into a choir. The new form gradually developed at Byzantium till Justinian's architects devised the noble church of St. Sophia—the Greek cross of four arms abutting on a central square block, its interior gathered inwards to form the tambour of a large hemispherical cupola, was next illustrated. The Greek cross, lengthened in one arm into the long Latin nave in Italy, indicated the rule of the Exarchs till the Lombards set up a kingdom of their own, and having soon learned the arts of the people they conquered, erected churches in a mode now termed the Lombard style, a mixture of the Greek and Latin ecclesiastical architecture. The low cupola, sometimes domical, sometimes roofed in an inclined plane of Greek and Lombard edifices, was followed to the Rhine churches, where a bold departure from the almost flat-roofed octagon of North Italy was noticed in the spire of Bonn Cathedral.

**RESTORATION OF THE PARISH CHURCH OF OTTERY ST. MARY.**—The restoration of the church of St. Mary Ottery, Exeter, was completed to open the building on the 15th. No cost has been spared, and colours and gilding have been substituted for whitewash and cobwebs. According to local informants, all the galleries have been removed, except one in the south transept, in which the organ has been erected. This instrument formerly stood in a gallery at the west end, and by the alteration the west window, which has been restored with stained glass, is visible. The pews have been removed, and low open seats substituted. The chancel is paved with encaustic tiles of variegated design. The walls have all been scraped clean: the stone niches round the choir have been repaired. The altar is approached by easy steps, each paved with encaustic tiles. Behind the altar is a small chapel, dedicated to the Virgin Mary, and known as the "Ladye Chapel." The vaulting ribs of the nave have been picked out with bright colours in star, lozenge, &c., patterns, the face of the vault being grey. The chancel ribs have the outer fillet chequered with green and yellow, and have a foliated red border studded with gilt flowers edging the rib on the vault. The (erroneously called) Grandison aisle has some old seat ends (discovered under the floor) adapted to its benches, these latter being Third Pointed and suited to the late character of this richly vaulted aisle. The lady chapel has its vaulting decorated with colour, and is furnished with seats. There are many painted windows by Wailes, O'Connor, Hardman, and Warrington. The font, which is described as being very magnificent, is composed of Devonshire and cornice marbles, and was the gift of Mr. A. B. Hope. The restoration was carried out under the direction of Mr. Butterfield, architect. The contract was undertaken by Mr. Livermore; the stone-work executed by Mr. Digby, of Ottery.

**THE ARCHITECTURAL EXHIBITION,** originated by the "Architectural Association," will be opened in August, in the New Water Colour Society's Gallery, Pall-mall. The association say,—"A public exhibition, especially devoted to architecture, [is a desideratum, the importance of which is so generally acknowledged, that it would be superfluous to dwell upon its peculiar merits and advantages. It is obvious that one of the most favourable results of the establishment of such an exhibition would be to create in the public mind, a greater degree of interest than at present exists concerning architectural art, and to diffuse principles whereby the efforts of its professors may be the more justly and extensively appreciated. The committee will be prepared to receive for exhibition, drawings of works contemplated or in progress, designs submitted in competition during the year, studies and delineations of existing buildings, and antiquities and architectural models. These are to be sent to the gallery, either on 5th or 6th of August." It is much to be regretted that it could not be opened earlier: London is then getting empty.

**DAMAGING ORNAMENTAL TREES.**—At nisi prius the proprietor of a villa at St. John's-wood lately brought an action of damages against a tenant who had lopped five trees of the weeping willow, birch, laburnum, and acacia tribes, which stood between the villa and the high road, concealing the view between the two. The plaintiff estimated the deterioration of his property at 15s. a week on 3l., the whole amount of the rent, as the trees were of twenty years growth, and so much injured that twelve or fourteen years would scarcely restore them. On the other hand evidence was led to shew that 3l. a week were still asked for the villa, and that the pruning had not deteriorated the value of the property, a nurseryman declaring that in two or three years the trees will be handsomer than ever they had been. The jury awarded 30l. damages.

**VALUE OF PROPERTY IN BIRMINGHAM.**—At an inquiry before Mr. Alexander, Q.C., as assessor, and a respectable jury of the county of Warwick, to assess the value of certain premises in High-street, consisting of two houses and retail shops, standing upon 180 yards of ground, and which had been rendered uninhabitable in consequence of the formation of a tunnel of the London and North-Western extension line of railway, Mr. Allen, the freeholder, claimed 7,000l., with an additional sum for compulsory sale. The company had tendered 4,500l., or to reinstate, by the erection of new buildings. The jury, after hearing evidence, found a verdict for 5,700l.,—thus fixing the company with the costs of the inquiry.

**LITHOGRAPH OF LORD GOUGH.**—Mr. Grundy (Regent-street) has just published a clever lithograph of Lord Gough, from a three-quarter portrait painted for his Lordship by Mr. J. Harwood. The lithograph has the peculiarity of being executed by the artist himself, and is very effective.

## TENDERS

For two houses, with warehouses, at Tring, Hertfordshire, for Mr. Nicholson: Mr. C. Dyson, Architect:—

	Houses.			Ware-houses.			Total.
	£	s.	d.	£	s.	d.	£
Hedges .....	1,579	0	0	321	0	0	1,900
Reed .....	1,283	0	0	357	0	0	1,640
Haselgrove .....	1,318	15	0	275	4	0	1,594
Holmes .....	1,250	0	0	325	0	0	1,575
Andrews .....	1,192	0	0	325	0	0	1,517
T. Burton .....	1,151	0	0	300	0	0	1,451
Honour (accepted) .....	1,122	0	0	240	0	0	1,362

\* \* \* Old materials of the present houses, to be allowed for, ranged from 40l. to 200l.

For the erection of the Ragged and Industrial Schools and Juvenile Refuge, Albert-street, Spitalfields: Mr. James Harrison, Architect: from quantities taken out by Mr. G. Enoch:—

Turner and Sons .....	£3,199	0	0
Pilbeam .....	3,116	0	0
Brown and Sons .....	3,094	0	0
Pollock and N'Leaman .....	2,535	0	0
Carter and Ellis .....	2,797	0	0
Haines and Co. ....	2,787	0	0
Hill and Son .....	2,739	0	0
Coleman .....	2,693	0	0
Curtis .....	2,614	0	0
Corby .....	2,600	0	0
Smith .....	2,538	0	0
Trego .....	2,527	0	0
Loft .....	2,577	0	0
Cooper and Davies .....	2,570	0	0
Hill .....	2,445	0	0
Stockman and Grehan .....	2,300	12	0







**REDUCED PRICES.—EDWARD SIMMS** (late William Clave, of Wilton-road, Pimlico Basin) begs to acquaint Builders and the Trade that he has now on hand, at his Manufactory (the first of its kind ever established), a very large assortment of Irish and Welsh stone of all and every description, of all sorts, from 1 inch to 12 inch, planned to a parallel width and thickness, and at greatly reduced prices. Also, Timber, Deal, Oak, Fir, Larch, Scaevola, Birch, Elm, &c., prepared by Machinery, Larch, &c.—Apply at **E. SIMMS'S** Store, W. Clave's Flooring Manufactory, Wilton-road, Pimlico Basin.

**FLOORING.—ALFRED POSLING** begs to inform his customers and the Trade generally, that he has now very materially **REDUCED THE PRICES OF HIS DRY FLOOR BOARDS**, of which he has stock on extensive accoutrements. To purchasers of a quantity of freshly prepared boards A. P. is able to offer a great reduction upon his current prices, to avoid the expense of public sale, of the Irish Larch, Moldavia in great street, and prepared in a very superior manner. Southwark-bridge Ward, Bankside, October, 1849.

**THOMAS ADAMS, Mahogany and Timber Merchant**, Bermudez New road, Southwark, near the Bricklayers Arms, is **SELLING SEASONED FLOORING** at **LESS PRICES THAN ANY ADVERTISED**; also matched boards and mouldings prepared from the very best material, and in a superior manner. Cut deals and scantling of every dimension; mahogany, cedar, rosewood, walnut, ash, beech, oak, &c., painted, oak, and in larch, wheelwright's wood. All sawn and prepared goods (except timber) delivered free of expense. Sawing charged at mill price. Very extensive draughts of work. Sawing and planing N.B. English timber taken in exchange for foreign.

**PRESENT PRICES OF SEASONED FLOORING**, prepared for improved floors. No cut, 11 in. yellow, per sq. .... 8s. 6d. 11 in. spruce, per sq. .... 12s. 6d. 11 in. 12 in. 13 in. 14 in. 15 in. 16 in. 17 in. 18 in. 19 in. 20 in. 21 in. 22 in. 23 in. 24 in. 25 in. 26 in. 27 in. 28 in. 29 in. 30 in. 31 in. 32 in. 33 in. 34 in. 35 in. 36 in. 37 in. 38 in. 39 in. 40 in. 41 in. 42 in. 43 in. 44 in. 45 in. 46 in. 47 in. 48 in. 49 in. 50 in. 51 in. 52 in. 53 in. 54 in. 55 in. 56 in. 57 in. 58 in. 59 in. 60 in. 61 in. 62 in. 63 in. 64 in. 65 in. 66 in. 67 in. 68 in. 69 in. 70 in. 71 in. 72 in. 73 in. 74 in. 75 in. 76 in. 77 in. 78 in. 79 in. 80 in. 81 in. 82 in. 83 in. 84 in. 85 in. 86 in. 87 in. 88 in. 89 in. 90 in. 91 in. 92 in. 93 in. 94 in. 95 in. 96 in. 97 in. 98 in. 99 in. 100 in. 101 in. 102 in. 103 in. 104 in. 105 in. 106 in. 107 in. 108 in. 109 in. 110 in. 111 in. 112 in. 113 in. 114 in. 115 in. 116 in. 117 in. 118 in. 119 in. 120 in. 121 in. 122 in. 123 in. 124 in. 125 in. 126 in. 127 in. 128 in. 129 in. 130 in. 131 in. 132 in. 133 in. 134 in. 135 in. 136 in. 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# The Builder.

No. CCCLXXXIII.

SATURDAY, JUNE 8, 1850.

**T**HE two reports of the committee appointed to consider all matters relating to the building required for the intended Exhibition of the Industry of all Nations have been published, and will be found to confirm generally the information we gave some time ago. Printed copies of the reports have already been extensively circulated, and, to continue our record, we must confine ourselves to the pith of them. After acknowledging the material assistance they have derived from the designs submitted, the committee say they have nevertheless arrived at the unanimous conclusion, that able and admirable as many of them appear to be, there is yet no single one so accordant with the peculiar objects in view, either in the principle or detail of its arrangement, as to warrant them in recommending it for adoption. They have, accordingly, prepared a plan themselves, and, in doing so, have been governed mainly by three considerations\* :—

1. The provisional nature of the building.
2. The advisability of constructing it, as far as possible, in such a form as to be available, with least sacrifice of labour and material, for other purposes, so soon as its original one shall have been fulfilled, thus insuring a minimum ultimate cost.
3. Extreme simplicity, demanded by the short time in which the work must be completed.

For the arrangements of the plan they rely for effect on honesty of construction, vastness of dimension, and fitness of each part to its end.

The principal points of excellence they have endeavoured to attain are, they say,—

1. Economy of construction.
2. Facilities for the reception, classification, and display of goods.
3. Facilities for the circulation of visitors.
4. Arrangement for grand points of view.
5. Centralization of supervision: and
6. Some striking feature to exemplify the present state of the science of construction in this country.

As to this last point they say,—

"In order that the building, in which England invites the whole world to display their richest productions, may afford, at least in one point, a grandeur not incommensurate with the occasion, we propose, by a dome of light sheet iron, 200 feet in diameter, to produce an effect at once striking and admirable. From calculations which have been made of the cost of so grand a hall, we have reason to expect that it may be executed for a sum not greatly

exceeding the cost of the simplest form of roof likely to be adopted to cover the same area.

It is to be borne in mind that a considerable amount of any such difference may be recovered, should this portion of the building be converted hereafter to other purposes, which is more than probable. This vast dome it is proposed to light mainly from one circle of light in its centre, and thus the sculpture will be pleasingly and suitably lit."

The construction of this dome, 200 feet in diameter, will be no joke. We may remind the reader that it will be double the size of our St. Paul's dome, which is about 112 feet in diameter. The dome of St. Peter's, at Rome, is 139 feet in diameter; and that of the Pantheon 142 feet.

This central hall will be a polygon of sixteen sides, four of which will open into gardens reserved around it. Its main walls will be of brick, and about 60 feet high.

According to the committee, our continental neighbours have especially distinguished themselves by compositions of the utmost taste and learning, worthy of enduring execution,—examples of what might be done in the architectural illustration of the subject, when viewed in its highest aspect, and "at all events exhibiting features of grandeur, arrangement, and grace."

"Amongst these several classes of design, the practical character of our own countrymen, as might have been expected, has been remarkably illustrated in some very striking and simple methods suited to the temporary purposes of the building, due attention having been paid to the pecuniary means allotted to this part of the undertaking. The principle of suspension has been applied in a single tent of iron sheeting, covering an area averaging 2,200 feet by 400 feet, by a lengthened ridge, or in separate tents on isolated supports. Others display the solution of this problem by the Chapter-house principle, and a few by the umbrella or circular locomotive engine-house system of railway stations, either with a central column or groups of columns sustaining domes or roofs to the extent of 400 feet diameter.

Grandeur and simplicity of distribution are carried out with great architectural effect in other compositions, and the general arrangement by columnar supports has been also variously and elegantly developed. The system of iron roofing, with all the architectural powers of which that material is susceptible, has been adopted by some with signal enterprise, ingenuity, and power.

In another class of design the authors have viewed with enthusiasm the great occasion and object of the proposed Exhibition, and have waved all considerations of expense. They have indulged their imaginations, and employed the resources of their genius and learning in the composition of arrangements which present the utmost grandeur and beauty of architecture, suited to a permanent palace of science and art. These, as addressed to the architectural student, are of the highest value, reminding him of all the conditions of his art,—the Egyptian hypostyle, the Roman thermæ, or the Arabian or Saracenic inventions. And, though their expense has placed them beyond reach, they cannot fail to inspire and elevate the treatment of the reality. They, at all events, confer great obligations on the lovers of the fine arts, for the authors have evidently felt, that, if one of the results to be expected from the proposed Exhibition may be to prove that the simplest object of ingenuity and skill should not be devoid of some of the attractions of taste, the building itself ought to be an illustration of that important principle."

Considering this to be an occasion upon which the greatest amount of intellectual and commercial ingenuity should be called out, and that the ability of constructors should be put in requisition, the committee recommend as the best means of enlisting the services of intelligent and enterprising contractors (as we said they would), that when they have prepared

such working drawings and specifications as may be necessary, invitations for tenders to execute works in accordance should be issued, requesting from competitors, in addition, "such suggestions and modifications, accompanied with estimates of cost, as might possibly become the means of effecting a considerable reduction upon the general expense."

Such tenders will accordingly be invited, and the result must be waited for.\*

The committee give two lists of competitors selected; the first consisting of seventy names,† as being entitled "to honourable and favourable mention, on account of architectural merit, ingenious construction, or disposition, or for graceful arrangement of plan;" and the second containing eighteen names, selected from the preceding, "for further higher honorary distinctions, on account of their designs of distinguished merit, showing very noble qualities of construction, disposition, and taste."

We give the second list first :—

C. Badger, architect, Paris; Thomas Bellamy, architect, London; J. H. Bertram, C.E., Reading; A. Botrele, architect, Paris; J. Cailloux, architect, Paris; Henri Van Cleemputte, architect, France; Cremona, architect, Paris; A. Delaage, architect, Paris; A. G. le Dreux, Clermont, France; M. G. Fétar Van Elven, architect, Amsterdam; J. Henard, architect, Paris; H. Horeau, architect, Paris; C. Huchon, Paris; H. le Pâtre, architect, Paris; Casimir Pétioux, Paris; Paul Sprénger, architect, Vienna; Richard and Thomas Turner, Hammersmith Works, Dublin; and Véron, of Paris.

And of these they point particular attention to the designs accompanied by models, "of Monsieur Hector Horeau, architect, of Paris; and of Messrs. Turner, of Dublin, as evincing most daring and ingenious disposition and construction."

The following are the remainder of the service :—

C. B. Allen, W. Allingham and Todd, W. Bardwell, H. Ashton, P. P. Baly (four designs), R. Bell, H. Bouse, R. Brandon, F. Brown, J. B. Bunning, G. A. Burn, H. Case, J. Charpentier, Paris; J. P. Chyssenar, architect of King of the Belgians, Brussels; J. W. Conrad, Holland; H. Courtney, W. Cruikshank, C. Downes, A. Durand, France; Dusillion, Paris; H. Fevre, Paris; S. C. Frapp, A. Gearing, Eugene Godebut, Paris; J. T. Harrison, T. Hayes, J. Imray, Ch. Schœch Jaquet, Geneva; — Jaulle, Calais; Louis Kahne, Bunswick; J. T. Knowles, M. Laves, architect of the King, Hanover; W. B. Lewes, C. C. Nelson, C. F. Nepveu, Versailles; — Palliard, Paris; H. S. Ridley, J. B. Roberts, A. Rosengarten, Hamburg; W. Russell, H. Savage, J. P. Seddon, A. Slater, Elève, de Mons. Cluysenaar; Smallman Smith, C. H. Smith, H. Sumners and Wallis, F. Tyerman, jun., J. Watson, W. H. Wontner, and T. Worthington.

It will be observed, that of the thirty-eight designs submitted by foreigners, thirty receive (and doubtless deserve) honourable mention, while of the more than 200 contributed by England, Ireland, and Scotland, only thirty-eight are so distinguished. And beyond this it will be noted with dissatisfaction by many, perhaps, although the dissatisfaction will arise from very different causes in different minds, that, with the exception of one from London, one from Reading, and one from Dublin, all

\* The whole building must be finished and delivered up by January 1, 1851. Contractors will, we understand, be required to tender on two systems, one involving a resumption, after the termination of the exhibition, of property in the materials supplied by them, and the other proceeding on the supposition that Her Majesty's Commissioners become *bona fide* purchasers, and take the risk of a subsequent disposal of the building upon themselves.

† Including two firms; each name counted.

\* The building will be about 2,300 feet long, rather more than 400 feet across, and the roofed area will probably extend to about 900,000 square feet. In the centre of the south front, opposite Prince's gate, will be placed the principal entrance and offices. There will be three other great entrances in the centre of the other side of the building. Gangways 48 feet wide, clear and uninterrupted, excepting by stairs, will connect the entrances, and at the intersection of these main lines it is proposed to form the grand circular hall. The area will be covered with a simple iron roofing, of 40 feet span, running from end to end of the building, supported by hollow iron columns, resting on brick piers, and covered very probably with boarding and slate. The extent of the roof covering the main avenue will be 94 feet. The lowest line of the main roofing will be 24 feet high, (too low) and the clear height of the central gangway will be about 60 feet. The floor will, for by far the greater portion of the area, be formed of boarding laid on joists and sleeper-walls. The external enclosures will in all cases be constructed of brick. The light will be principally derived from skylights.



the designs which are pointed out as supereminently good come from abroad.

In the first round of the fight, England has gone down!

Without further comment at this moment, we give the names (or mottoes) of *all*, we believe, who have submitted designs, and are not mentioned in the previous lists:—

Messrs. Acollas, Paris; Aickin and Capes, W. Albon, F. C. Anderson, J. S. Austin, W. Austin, A. Beaumont, W. Bell, J. S. Bennett, J. Black, E. Blatchley, A. W. Boulnois, W. Boyle, R. Broad, B. Broadbridge; R. Brown, H. P. Burk, J. G. Crace, "C. E. G.," "C. T. G.," A. F. Campbell, J. Catt, J. Claringbull, J. Colshurst, J. Colson, C. C. Coote, W. R. Corson, David Cowan; M. Damas de Culture, Paris; G. J. Darley, W. Dennis, Francis Drake, H. Duesbury; M. Dufoque, Paris; M. Dupuy, Versailles; O. C. Edwards, "E. I. C.," J. Eldridge, J. Elliott, D. Erskine, W. J. Everett, M. Théodore Faure, M. Dessint Felix and E. E. White, F. Finlay, C. Folkard, D. C. Forbes, J. Forrest, W. Freebody, L. Fürges, Crefeld; A. Garrard, William Geggie, J. Gibson, R. Gillingham, C. W. Gooch, J. Gould, R. Greene, E. W. Grubb, R. S. Grubb, T. B. Guppy, Naples; J. C. Haddan, Herr Hammann, Hamburg; T. R. Hanford, O. Hansard, R. Hardy, J. P. Harrison, Thomas Haw, S. Heilton, J. Headley, J. Hewitt, W. S. Hollands, G. Horton, A. P. Howell, B. Harwitz, A. Jackson, C. Jayne; A. Jizkowski, Warsaw; J. Jopling, H. J. Kaye, G. P. Kennedy and R. Kennedy, A. Lady, S. W. Leonard, R. Lobb, Locke Brothers, H. Lockwood and W. Mawson, H. Lote, R. Lovely, G. Mackenzie; Magni and Thummeloup, Paris; R. Mallet, Mansell and Elliott, R. M. Marchant, P. J. Margary, W. P. Marshall, D. Mickle, J. Mitchell, J. Montheath, J. Moon, Captain Moorson, G. Morgan; J. H. Muller, Holland; W. Nethersole, I. W. Newberry, F. B. Newman, C. H. Newton, E. Parais, T. Peacock, J. D. Pemberton, G. Perry, "Q.," W. Radley, W. Railton, W. Rankin, W. Reed, Reid and Butcher, S. Reilly, G. B. Renzie, H. Ricardo, W. Riddle, A. J. Robertson, W. Robertson, A. M. Ross, "Rough Drought," H. Rouse, H. H. Russell, E. Ryde, G. Sanderson, C. Sanderson, R. Sandeman, W. Scurry, "Sed quis custodiet Custodes," J. R. Sewell, E. Smallwood, J. M. Smith, W. J. Smith, Campbell Smith, Soyer and Warriner, F. Sternitz, W. Stewart, M. J. Stutely, H. Suckling, G. Tate, J. Taylor, T. Taylor, J. H. Taunton, D. W. Thomas, R. M. Thompson, P. Thompson, F. Thompson, James Thrupp, H. Turner, "Vulcan," J. Walker, J. N. Warren, H. Whitcombe, G. Wightwick, G. Wilkie, G. Wilkinson, S. J. Wilkinson, J. Williams, G. Wilson, R. Wilson, J. G. Wilson, R. Winder, R. A. Withall, F. Wood, and James Wylson.

It will be seen that none of our leading men have competed.

#### ON THE PROPRIETY OF THE APPLICATION OF CEMENTS,

OR OTHER ARTIFICIALLY FORMED MATERIALS, TO THE EXTERIORS OF BUILDINGS.

BEFORE I enter upon this difficult and much-vexed question, I wish to state distinctly that wherever I may express an opinion of my own, unsupported by actual observations, I shall do so with great diffidence, and with the full conviction that such opinion may be proved hereafter to be erroneous; because I feel that before the nature of cements or stuccoes can be clearly understood, a larger amount of statistical details, and a much more correct knowledge of the chemical changes which are produced by apparently minute differences in the materials themselves, or in the conditions under which they are applied, than is possessed at present, are absolutely necessary.

Although the practice of covering the exteriors of buildings with some description of plastic materials appears to have prevailed from a very early period, it will, I think, be readily admitted, that in our own age and country this practice has been carried beyond all former precedents. It would be impossible, on an occasion like the present, to enumerate all the causes which have produced, or have assisted in producing, this result; but perhaps, as among the most prominent of these, I may mention, the cold and humid atmosphere of our northern climate; the impossibility (in many localities) of obtaining, except at a cost too great to be incurred, such materials as will effectually resist the destroying influences of rain and frost; and a growing inclination on

the part of our employers to add something of the beautiful in form to that convenience of arrangement and fitness for the intended purpose, without which the most elaborate productions of our art are really failures, or can at best be deemed but splendid errors.

It is true, that when the practice of employing stuccoes and cements for covering the exteriors of buildings was first adopted, the science of geology had not revealed that valuable page in the great book of nature which has recently attracted so large a measure of study and attention, and that the nature and quality of the materials which compose the crust of our planet are, through the aid of that modern science, better understood by us than they could be by those who were engaged in the art of building before this source of knowledge had been revealed. Yet this additional knowledge, upon a subject so deeply interesting to the architect, has tended to confirm the impression which previously existed, by showing him that in many portions of the United Kingdom no building stone can be obtained capable of effectually excluding moisture, or of resisting, for any lengthened period, the vicissitudes of our climate; and by convincing him that, in order to secure in such cases dry, healthful, warm, and comfortable habitations (especially when buildings are rapidly erected, and occupied immediately after their completion), two things are absolutely necessary, and that a third is exceedingly desirable:—

1stly. That the outer face of all the external walls should have a covering or skin of some material impervious to water.

2ndly. That the moisture from the earth should be prevented from rising into the brick or stonework by the introduction of some water-proof material into all the external and internal walls and partitions, immediately above the ground level.

3rdly. (Where bricks are employed, and a proper amount of careful supervision can be exercised) that the external walls should be hollow, with an air space of 4 or 4½ inches between the external and internal work, excepting at the jambs of the openings and the points of junction with the internal walls.

That the necessity for these, or similar precautions, in the erection of dwelling-houses in exposed situations, is perfectly well known to the elder members of the profession, and that they adopt them in their practice, I entertain no doubt; but as their advantages may not be equally clear to those who have yet to enter upon the practical department of our art, and lest they should imagine that I am speaking theoretically, and not from actual experience, I will mention, that a house was erected about six years ago, in an exposed situation, and on a stiff clay soil; that the carcass was carried up in an unusually wet autumn, and the walls exposed to heavy and continuous rains; that no wall battening was used in any portion of the building, which was roofed in at the end of December, and completed and inhabited by the end of the following October, at which period it was quite fit for occupation; that there has never been since that time the slightest appearance of damp in any portion of the smallest settlement perceivable; and this result is, I believe, mainly, if not entirely, attributable to the adoption of those precautions which I have mentioned as being, in my opinion, essential in nearly all cases, and to one other, which is only important on clay soils, that is, the covering of the whole area occupied by the building with a bed of concrete, which should not be less than six, and need not be more than twelve inches in thickness.

To those who have been accustomed to build only in London, or in other towns and cities, it would, I believe, be quite impossible to convey an adequate idea of the difficulties which must frequently be encountered by those to whom the erection of isolated houses in very exposed situations is entrusted; when, as very frequently happens, no such stone or bricks can be obtained as will effectually resist the rain, and prevent it, when accompanied by heavy gales of wind, from passing through the walls.

I could, if time permitted, mention many remarkable instances of the mechanical force with which the rain is sometimes driven horizontally against the walls of buildings in elevated positions; but I will select one only,

which made a great impression on my mind. During a visit to a large building in course of erection on Black Down (the highest ground, I believe, in North Devon), I observed a portion of a 9-inch partition wall saturated with water. As the building had been roofed in some weeks before, I was a good deal surprised at this appearance; but I had an opportunity, a few days afterwards, of witnessing what explained to me the cause of it; for, being on the spot during a heavy gale of wind and rain, I stood for some time watching the result, and saw the rain passing through window-opening across 18 feet of space, and striking with great force against the opposite internal wall, and in the course of about an hour making its appearance on the other side.

Very shortly after witnessing this occurrence, I was called upon to examine a church, which had been erected in a similarly-exposed position, through the walls of which (even those of the tower) the rain found admission to the interior in very large quantities. Three or four years having been suffered to elapse, during which this evil was found to be continually increasing, the walls were covered with stucco, of the kind which I shall have hereafter to describe, which proved in that, as it has done in all other cases with which I am acquainted, perfectly effective.

Contenting myself with the remark, that in no single instance have I known the external application of a well-made and carefully-used stucco to fail in accomplishing the desired object, I will proceed to combat those which appear to me to be the strongest of the objections which are advanced against this mode of protecting and adorning the exteriors of our buildings, viz.:—

That cements and stuccoes are not durable, and require frequent and expensive reparations.

That they are very costly; not so much at first, as by reason of the colouring or painting in oil, which it is thought (erroneously I believe) that they afterwards require.

That they are false and deceptive, inasmuch as they, being artificially formed materials, do, in some measure, assume the appearance of natural productions.

That their introduction has led to all that is false in design, and defective in construction.

And that, when employed in decoration, the enrichments are deficient in that sharpness of outline, and delicacy of finish, by which the productions of the chisel are distinguished.

Now, I must readily admit, that a very large proportion of the cement and stucco work which we see in London and its neighbourhood is so faulty in design and defective in execution, that it is difficult to find language strong enough for its condemnation. I know that many of the structures which we see bedizened with what are intended for, and by some, perhaps, are dignified with the name of, decorations are indeed but whitened sepulchres. That many of the bricks used in them might, by a strong man's hand, be crushed to powder. That the mortar is composed of earth, dug from the foundations, mixed with a very small quantity of white chalk lime. That the timbers are defective, both in quality and scantling; and, that in short, the whole affair, from the foundation to the roof, comprises all that is miserable in construction, and false in taste.

But I cannot think that these defects are referable to the use of stuccoes and cements, or that by the external application of these materials, structural defects can be successfully concealed. On the contrary, I believe that the cracks and openings produced by the settlement of piers or arches; by the shrinkage of timber, improperly introduced; by the fracture of stone lintels, or other such-like causes, are to the full as conspicuous in a stuccoed building, as in one which is faced with brick or stone, and quite as difficult to repair effectually. Indeed, I feel so strongly the necessity of extreme care being taken in the construction of buildings which are intended to be covered with cement, that I not only turn inverts under all the openings, but frequently omit also the reveal arches and the timber lintels, carrying, instead of them, relieving arches through the whole thickness of the wall. I have never yet seen any cracks or settlements in the walls of buildings thus constructed when carefully stuccoed, and I see no reason why this mode of building should



not be almost universally adopted, when cement or stucco are intended to be used, as it is more effective and durable, and is not at all more costly.

It has been frequently asserted that no chemical or mechanical combinations of matter will result in a successful imitation of what has been effected in nature's laboratory, and that no artificial materials can be made equal in durability to natural productions; yet it would, I think, be difficult to find in England any description of building stone more capable of withstanding, for a lengthened period, the vicissitudes of our climate, than thoroughly well made and well burnt bricks, and terra cotta.

It is true that the firing to which bricks and terra cotta are subjected may be fairly considered as constituting a great difference in their power of resisting atmospheric influence, as compared with any of the cements which are now usually employed; but it is quite certain that cements and mortars have been made, which, for hardness and durability, were almost, if not quite, equal to the hardest bricks. And I cannot doubt the possibility of again doing, in our own time, what was certainly accomplished at a period when, however much grandeur of conception and just appreciation of beautiful forms might have exceeded those with which men's minds appear to be endued at present, the physical sciences were but little known, and contributed only in a very slight degree to the comforts and the social enjoyments of the human race. A proof that I am not overstating the power of resistance to atmospheric influences which mortars and cements, when properly prepared, do undoubtedly possess, is afforded by a piece of Roman mortar, from Wroxeter, now exhibited, which has evidently been used as an external cement or stucco, and which must have been exposed to the action of rain and frost for fourteen or fifteen hundred years.

It is said that failures very frequently occur in works which have been executed in cement, and that the decorations produced in artificial materials are always deficient in that sharpness of outline, and delicacy of feeling, which constitute the great charm of architectural enrichments. But I would ask whether it is not possible to lessen, if not wholly to remove, these very grave objections, by great attention on the part of the architect in designing, and especially in inspecting the modelling of his enrichments whilst in the clay;—by a determination, on his part, to become thoroughly acquainted with the nature and properties of all such cements as he intends to employ for the covering or decoration of his buildings, whether internally or externally, so that he may be enabled to form a correct opinion when he sees the work in progress, whether the materials have been properly prepared by the manufacturer, and then sent to the building in a state fit for use by the contractor, and are being judiciously mixed and applied by the workmen and labourers;—by employing in the execution of his works such men only as are thoroughly masters of their business, making them responsible for the reparations and reinstatements of any portions of the works which may fail within five or seven years after their completion;—and by securing the services of clerks of the works, or foremen, who are well acquainted with the nature of the cement to be employed, and who will keep a vigilant eye over the proceedings of the workmen.

But some will doubtless tell me, that if, in order to prevent failures in the effect, or in the durability, of cement work, all this care and circumspection are required, failures and imperfections are quite certain to occur. This may be true; but if true as regards cement, it is also true of other works required in the erection and completion of a building. And how, let me ask, can the imperfections so often found to exist in the plumber's work, and in the drainage of our buildings; in the carpentry of the roofs, floors, and partitions; in the foundations and the brickwork, be prevented? How can the disintegration and crumbling away of the most prominent members of stone cornices, strings, balconies, and chimney-tops, within a few years after their completion, be avoided, excepting by the same degree of knowledge, care, and skill, on the part of the architect, the contractor, the clerk of the works, the foreman, and the workmen,

which I have insisted on as essential to the successful employment of cements?

There are, however, among those who have most strenuously opposed the use of these materials, a considerable number who ground their objections not on the want of durability, the chances of failure, or the extra cost, but on their want of reality, their resemblance to some natural productions, and the smallness of their cost, as compared with the stone casings which they sometimes resemble. Now, however desirable, and proper, and commendable it may be, or doubtless is, to introduce into the structures which are reared in honour and for the worship of the great Creator, the most valuable and the choicest of earth's productions, yet it must, I think, be admitted, that the qualities of the materials in which the thought of a great artist is embodied (so that it possess both durability and beauty), are in all other cases of very secondary importance. I fear, however, that the disposition to place so high a value on costly stones, and woods, and metals, which appears lately to have prevailed amongst those who profess to be the patrons of the arts, is calculated to produce on the minds of the people generally false impressions, because it leads them to admire that which is difficult of attainment except to the possessors of great wealth, instead of that which is truly grand, and beautiful, and original in design.

That species of admiration which is excited by the costliness of the materials employed in works of art, has always appeared to me to partake considerably of the vulgar and the barbarous! for, as much as the heavens are higher than the earth, so much, do I believe, the emanations of the mind to be above and beyond the mere vehicle in which they are embodied. Whatever is really beautiful in form, or truly harmonious in colour, should be enshrined as amongst the most precious of man's productions; and I cannot doubt that the time will come (although, perhaps, not in our day) when the immaterial thought of the artist shall be more highly valued than any stones, or woods, or metals, however rare or costly, in which it may be clothed. Much better is it, in my opinion, to have the emanations of deep thought, the creations of those minds which have been imbued with a due appreciation of the beautiful in form, embodied in materials which might endure for only half a century, than the eternal stereotypes we now see rising throughout this great and wealthy country, perpetuated in stone which would endure for countless ages.\*

JAMES THOMAS KNOWLES.

#### AN ARGUMENT AGAINST THE USE OF CEMENT DECORATION.

THE real source of the satisfaction we derive in the contemplation of architectural decoration executed in *constructive* material, be it stone or brick, is the idea it suggests of the union of decorative features with constructive requirements, and the meaning and propriety which such decoration thereby acquires. It is, in truth, nothing more than a tacit acknowledgment, a sort of homage, *unwittingly* paid to the truths and reality of this last great principle of propriety in architecture, which requires that art be the handmaid of necessity, convenience, and utility,—decoration the drape of construction, beauty, and proportion, either in detail or in mass,—the skilful and artistic arrangement of those features which the purpose of the building demands, or the constructive framework of the edifice requires; and it is the absence of this *constructive necessity* and propriety, irrespective of other qualities which may be disputed, that renders the use of cement distasteful and unsatisfactory, not only to the educated professional eye, but even to the instinct of sound sense and correct taste.

It cannot, indeed, be denied that cement is purely a decorative and not a constructive material, and that this constitutes its real difference from stone when adopted for ornamental purposes,—that the true and legitimate application of architectural ornament is to decorate essential members of architectural construction, and not to conceal their purpose,

use, or meaning; and, consequently, that the employment of cement to imitate the decoration of stone construction is an architectural solecism we should never defend, although we may admit its use under certain extenuating circumstances. Neither, might I say, in conclusion, is there quite that analogy between the stone facing to a building and a mere cement front which Mr. Knowles urged in reply to one of Mr. Scott's arguments. In this latter instance, although not adding to the strength of the edifice, the stone is used purely as a constructive material, and is put together and attached to the building in a manner which denotes its employment in this capacity, although it be applied as decoration, standing, as it were, wholly and solely by its own gravity, as in the piers or walling, or by the application of such of the mechanical forces as are suitable to its physical condition, as in the arch. Cement, on the contrary, is used purely as a decorative material, existing solely by cohesion, and not only concealing the constructive parts of the edifice, but, as in the case of the flat architrave of an opening, suggesting the idea of a different principle to that actually employed to span the opening, viz., the lintel instead of the arch. It is, indeed, so utterly *unconstructive* that it cannot even be employed in masses of any size, but we are compelled, if we wish to procure projections of any depth, to form cores of the actual constructive material of the building, without which, whatever may be its *indestructibility* when properly made, it is not even able to bear the leverage of its own weight. In making these remarks, I am far from decrying the use of cement even to imitate stone decoration, although undoubtedly there is nothing so likely to produce a meretricious style in art as the use of an artificial and unconstructive material for decorative purposes; yet we must, I think, admit that in the absence of a better material, it has added at least to the cheerfulness and variety of our street architecture. It has given us the opportunity of *experimenting* in architectural design to an extent to which we could otherwise never have indulged, and sometimes, if the truth were told, in a manner that makes us regret that it is not even more perishable than it actually is. And lastly, it has possibly fostered the love for architectural display which may in the end lead to the execution of better things, in a better, more durable, and more legitimate material. I have written mainly to combat the position that cement is a proper and legitimate material for architectural decoration, equal to, nay, better than stone, because it can be made more durable, and that the prejudice entertained against it is without reasonable grounds, originating in the imperfect manufacture and execution of the material itself.

HENRY B. GARLING,

#### WALTHAM ABBEY CHURCH.

WHEN you, gentle reader, as the novel writers say, are next about to travel on that very slow coach, the Eastern Counties Railway, and have an hour to spare, if you have not seen Waltham Abbey, arrange to stop at Waltham station, and walk over to the church. Or, if you want a pretext for a short journey into the country, and a pleasant ramble, you may find a less tenable excuse than this same church. When you reach the station, going from London (the distance is under 15 miles), you may see the tower half a mile away to the right, crowned with a large white cross of wood. The abbey itself was known as that of "Holy Cross" in times gone by, because of a cross said to have been brought there by miraculous means in the reign of Canute; but what connection there may be between the white cross in question and that tradition, deponent sayeth not. Saxon Harold built, or rather rebuilt, a church here, from 1062 to 1066: in it, previously to the battle of Hastings, he paid his devotions;—and to it, after the fight, his remains were brought for interment. Part of the church, as it now stands, may possibly be a portion of Harold's building, but there is nothing to distinguish the work from that in structures erected after the Normans had been amongst us some time.

The first glance of the interior is very striking and interesting. lofty and massive cylindrical shafts, channelled and zigzagged, separate

\* To be continued.



## CANNABIC DECORATIONS.



the nave from the aisles: the semicircular arches have incised zigzags, and the inner soffit the same ornament, of more finished character. The triforium is large, as in the great Norman churches at Caen. The floor of this, by the way, is removed, so that the aisles include the triforium in their height.

Each window in the clerestory consists of one large semicircular opening, with a smaller on each side. There is a fine lofty semicircular arch at the east end, formerly the junction with the transepts, but beyond this nothing remains. At the west end the arches are pointed.

The whole is whitewashed, and has a miserable flat ceiling. At the west end there is an elegant doorway of the Decorated Period, and some pretty bits of the same period near it, and at the east end. The upper part of the tower was messed when rebuilt in 1798. Amongst the noticeable things inside is an Elizabethan monument in a deplorable state of repair, with effigies of the husband and wife lying uncomfortably one over the other on their sides, and of six sons and four daughters, below. There is a memorial here, too, to Francis Wollaston, 1684; and one to Mr. Thomas Leverton, architect to the "Land Revenue," and other public offices, who was a benefactor to the church, and died in 1824.

Waltham Cross, which is on the other side of the line, is fast falling into decay again.

## CANNABIC DECORATIONS.

WHEN describing the construction and decoration of the Royal Italian Opera House, Covent Garden, two years ago, we alluded incidentally to the patent cannabic composition, of which all the applied ornaments there are formed. The use of this valuable substance has been kept back through circumstances, but the patentee is now again bringing it before the public. The staple material is hemp or flax,—as its name imports.

The hemp employed is the "shorts" of the rope manufactory, or the "waste" of the flax-spinning mill. It is sorted, freed from foreign substances, and mixed with a heated resinous compound. After being saturated with the mixture, the material is subjected to great pressure, by means of rollers, and turned out in sheets of about twenty superficial feet, varying in thickness according to the nature of the purpose for which it is intended. In this state it is black in colour, close in texture, hard to the touch, and very difficult to tear. It retains scarcely any trace of a resinous odour, and, when struck, sounds like a thin board. The process of manufacturing the sheets into mouldings, bas-reliefs, scrolls, pendant bosses, panels, floral wreaths, figures, picture-frames,

and the many other ornamental objects for which it may be employed, is by means of metallic dies, formed in a peculiar manner, which are fitted to a hydraulic press of very great power.

It is an Italian invention, very light, and it takes gilding. It has another recommendation in the shape of cheapness. The patentee has a large collection of patterns, many of which show great sharpness and boldness: these all-important qualities could of course be further obtained by using a greater degree of mechanical power. The material is worth the attention of architects, builders, and exporters.

An extensive Album has been published for the patentee, by Mr. Weale, which will be found useful by ornamentists and others, even without reference to the material in question.

The annexed engravings are representations of some of the specimens in hand. The top scroll is 4 in. wide; the second scroll 3 in.

## THE CHURCH OF KINGSTON-ON-THAMES.

THE miserable and unecclesiastical appearance presented by the tower of Kingston Church, strikes every one who visits that pleasant and important town; and we have recently received more than one communication, begging us to bring this under the attention of the parish authorities. We are led by this circumstance to say, as we can of our own knowledge, that the churchwardens are fully aware of the discredit brought on the town by the condition of the church, but that they have not yet been able, at least they were not when we last heard from them, to induce the parishioners to permit the expenditure which would be required.

In the autumn of last year, the conductor of this journal was called in by them to report on the "actual repairs necessary for the safety of the tower and church."

The tower, which stands on four piers and arches (seen inside the church), appears to have been rebuilt in the year 1708, to the extent of about 27 feet downwards from the top. This part is of brickwork with stone dressings, and in character laughably different from the original. A height of about 33 feet above the gutters of the nave roof remains of the old tower, including four large and handsome belfry windows, buttresses at the angles, &c., and is seen to be of the perpendicular period of pointed architecture, and constructed mainly of stone.

This part is in a miserable, if not dangerous state of repair, considering the vibration caused by the bells when ringing, and for mere safety-sake, should be attended to, as also should other parts of the fabric. After point-

ing out what were the repairs *actually* needed, and their probable cost, the reporter said;—

"I should not be performing my duty if I were not to remind you that this would after all be but *patching*, and that the present incongruous aspect of the tower ought not to be retained. I would suggest that the parish should consider whether it is not desirable, when repairing the tower, that an endeavour should be made to render the whole of it consistent, and in accordance with its original character, which might be done without a great expenditure, by facing the whole with flint, continuing up the buttresses, adding battlements, a cornice, and pinnacles, and rearranging the dials.

"The ancient connection of the original church at Kingston with the sovereigns of England, renders this structure nationally interesting, and should ensure for it careful treatment. My desire that this should not be lost sight of, must be my excuse for going in some degree beyond the terms of the resolution.

"GEORGE GODWIN."

Lysons gives a list of seven if not eight Saxon kings crowned here, beginning with Edward the Elder, A.D. 900.\* In a record of a council held here in 838, it is called *Kynningestun, famosa illa locus*. The stone on which, according to tradition, the kings were placed for the ceremony of coronation (king's-stone), still remains in the market-place, and according to the county newspaper is about to be erected on a pedestal for preservation.

## THE BUILDERS' BENEVOLENT INSTITUTION.

ANNIVERSARY DINNER.

THE anniversary dinner of the Builders' Benevolent Institution took place on Tuesday, the 4th inst., at the London Tavern, when between 200 and 300 gentlemen connected with architecture and the various departments of the building trade assembled.

Mr. Wm. Cubitt, M.P., the President of the Institution, occupied the chair, and was supported by Mr. Grissell, F.S.A., Mr. H. E. Kendall, Mr. Kendall, jun., Mr. John Taylor, Mr. Lapidge, Mr. W. Tress, Mr. Penrose, Mr. T. Piper, Mr. S. Bird, Mr. Eales, Mr. Tyerman, Mr. Gardiner, Mr. Marsh, Mr. George Bird, Treasurer, Mr. J. Higgs, Mr. G. Spencer Smith, Mr. Nesham, Mr. Stirling, Mr. W. Lee, Mr. T. Cozens, Mr. H. Burton, Mr. Thorn, Mr. Dunnage, Mr. John Soward, jun., Mr. Knight, &c.

When proposing the health of Prince Albert, in the course of the usual list of toasts, the Chairman said he felt assured that the deep interest which the Prince Consort always manifested in the advancement of art of every description, would render this toast peculiarly acceptable to the present assembly.

\* In a chapel adjoining the church, dedicated to St. Mary, there were formerly figures of some of these kings; they were destroyed by the fall of the chapel in 1730.



After "the Army and the Navy," the Chairman proposed the "Periodical Press," and dwelt on the important part it played in forming society.

The Chairman when he reached the toast of the evening, said he was sure it would be responded to in the manner that it deserved. It was "Prosperity to the Builders' Benevolent Institution." Every one must admit that the Builders' Benevolent Institution was an institution which was much wanted, and which had been well conceived. He thought there were very few who would dispute the fact that the building trade in all its ramifications was the most, or at least one of the most important interests of this country. To carry out their trade, large and expensive establishments were necessary, and great outlay was required. He believed there was no trade in existence which gave so large an amount of employment to the labouring classes, nor was there any trade so beset with vicissitudes, as the building trade generally. There was no trade which had to sustain losses of a more extensive and ruinous character than the building trade; and taking the numbers they employed, and all other circumstances into consideration, he (the Chairman) thought they were justly entitled to consider themselves as one of the most important bodies in the empire. Let them look around that great metropolis, and he was bound to express a belief that there were few of the great modern public works in existence that some of them present had not had a hand in. Whether it was the magnificent structure now in course of erection, under Mr. Barry, by the gentleman who sat on his right hand, or other public establishments, they were all engaged in that which reflected the highest honour and credit to the country to which they belonged. Then, with all the power and influence of the building trades of the metropolis, was it to be wondered at that they should found an institution which should in some measure mitigate the sorrows, and soothe the afflictions, of those of their brethren who, from various circumstances, may have fallen into decay. It was true their institution was now in its infancy. It owed its origin to gentlemen who were then present, and to whom he (the Chairman) thought the building trade owed a deep debt of gratitude, he meant Mr. Thomas Cozens, and to some gentlemen whom they all very well knew, of the name of Bird. To those gentlemen chiefly were they indebted for their meeting of that day. Their institution had gone on flourishing in a most satisfactory manner, and he (the Chairman) hoped and looked forward to the day when it should become one of the most important institutions which this country could boast of. Had he the eloquence of the talented nobleman who had done them the honour to preside over their festival of the preceding year—had he the powerful eloquence of the Earl of Carlisle—he should expatiate at much greater length on the merits of such an institution as theirs; but as he was not possessed of the ability of that noble lord, he would content himself by submitting to them the toast:—"Prosperity to the Builders' Benevolent Institution."

To the toast, "The patrons and vice-presidents of the Institution," Mr. Piper ably returned thanks. He expressed his conviction that a more deserving institution, or one more calculated to excite sympathy and goodwill amongst the members of the trade for their less fortunate brethren could scarcely be contemplated; and he made a feeling reference to Mr. Biers, to whom, though he had lately fallen into trouble, the institution owed so much.

Mr. Grissel said the next toast would require but very few words from him to recommend it. It was the health of a gentleman who was not only justly the head of his profession, but who had rendered most eminent services to that institution, both as its President and Chairman of that day. It augured well for any institution when they could enlist the sympathies of such a gentleman as their respected Chairman in its favour, and he felt assured that, under such auspices, it could not fail to flourish.

The Chairman observed that he felt deeply grateful for the honour which had just been conferred upon him, although he hardly thought he was entitled to the rank which had

been assigned to him in his profession by his friend Mr. Grissel;—at all events, when his friend was present. He could assure them that he felt it to be a great honour to have been selected as the president of the Builders' Benevolent Institution, and he thought that it would be well that there should be an annual change in the persons appointed to fill that honourable office, because he conceived it would be the means of bringing various influences to bear, and induce a greater number of persons to interest themselves in its objects. He concluded by proposing "The Health of their respected Treasurer." They all knew the efforts which their treasurer had made in behalf of the institution, and he was sure they appreciated them.

Mr. G. Bird, in responding, said he had to congratulate his friends around him on the rapid advance which the institution had made during the past year. Their institution was only commenced in 1847, and they had now 400 annual subscribers, 1,600*l.* stock, and 100*l.* out at interest. They had already elected four male pensioners, and one poor female pensioner. The directors contemplated the election of five more pensioners in October next; and if the gentlemen at the tables would only fill up their subscription lists with a liberal hand, there was no doubt but that a desirable object would be effected. Their worthy chairman had told them that the building trade was a most important community. He believed it was, and he also believed that the builders had the power, if they had the will, of making their institution one of the largest and most important charities in the world.

The Chairman then proposed, "The Architects, Engineers, and Surveyors," coupled with the name of Mr. Godwin.

Mr. Godwin returned thanks.

The health of "Mr. Thomas Cozens and the Members of the Committee," "The Stewards of the day" (acknowledged by Mr. Kendall), and other toasts, were then disposed of, and the proceedings terminated.\*

#### NOTES IN THE PROVINCES.

THE laying of the foundation stone of St. Edmund's Church, Northampton, Mr. C. Vickers, architect, was postponed till 17th ult., when the ceremony was performed by the archdeacon of the diocese in presence of a large assembly. The church, we perceive, is to be cruciform, in the Early English style, with tower at the crux, and broach spire. There is a five-light window at the east end.—The designs for All Saints Church, at Hockerill, have been sent in, and the plan of Mr. G. E. Pritchett, of Stortford, has been selected by the Bishop of London. The building will shortly be commenced. It will be Early English in style, with accommodation for 500, without galleries. The estimated cost of erection is 4,000*l.*—The curate officiating at Norton Church, in palliating the neglect of providing a lightning conductor previous to the late accident, points attention, in the *Leicester Journal*, to the fact that this is a neglect common to "almost every country parish, many in towns, and even not a few metropolitan ones. I believe," he adds, "that of the seven or eight spire churches nearest to Norton, only one, that of Stoughton, possesses a conductor, and even this was put up, through the influence of Mr. Legh Keck, only about two years ago. I have no means of ascertaining what is the case in other parts, but I find among the instances quoted in a pamphlet by Sir W. Snow Harris, of churches injured by lightning owing to the want of conductors, the churches of St. Michael and St. Martin, in Liverpool, both struck in 1841; and in London, that of Spitalfields, struck in the same year; St. Clement's, in the Strand; and above all, the most central church in the whole metropolis, St. Martin's-in-the-Fields, the spire of which was struck and very much injured in 1842." These, however, are but a very few of the numerous instances of damage done to churches from want of light-

ning conductors since the dates specified.—Nearly 850*l.* have been subscribed by fifty-four persons towards the enlargement of South Hants Infirmary. Two wings for forty-eight patients, at a cost of 2,000*l.*, are contemplated, or one at least to begin with.—

The Committee of Visitors relative to the proposed new County Lunatic Asylum for Hampshire, recommended that the tender for the erection of the asylum made by Mr. W. Jackson, of Parliament-street, London (amount 33,786*l.* 6s. 9d., and sureties), should be accepted, and this the court have agreed to. The new asylum will accommodate about 400 patients, and is to be erected from the designs of Mr. J. Harris, of Hanwell. The principal front will be about 800 feet long, and, except a small clock tower in the centre, will be only two stories high. Every part, except the principal entrance, will be of the plainest description possible. The total cost will be nearly 50,000*l.*—which includes site and land adjoining, 5,550*l.*, less timber, 1,500*l.*; extras to building, 3,000*l.*, and furnishing, 10*l.* to 12*l.* a head. "We should have given the names and amounts tendered by unsuccessful contractors," says our authority for these particulars, the *Hampshire Independent*, "but that the committee adopted the very unusual, and to our minds, reprehensible course, of suppressing all information on the matter."—Cowbridge Church, says *Felix Farley*, is undergoing an entire renovation and repair, under the superintendence of the diocesan architect. The donations now amount to nearly 1,000*l.*—A committee has been appointed at Bath to carry out some public improvements, and especially to replace the iron railing in front of the Royal Crescent by a light stone balustrade; to construct a wide avenue from the park to the centre of the Crescent, divided into terraces by flights of steps, and on either side to erect a fountain, throwing jets of water from 30 to 40 feet in height. Another portion of the design is, to place fountains in Queen-square, the Circus, and Laura-place; the waste water to be conveyed to Kingsmead-square, to form another fountain.—The Infant School, opened in Macdonald-street, Birmingham, accommodates 150 children, and cost upwards of 1,000*l.*, ground and fittings inclusive.—The foundation-stone of a new Exchange at Wolverhampton, was laid on Wednesday week before last.—The new cemetery at Wolverhampton was consecrated on Monday week, except a third of its twenty acres set apart for dissenting bodies. Two chapels, erected under the superintendence of Mr. E. Adams, of London, architect, are attached, and are in the Early English style: each chapel measures 40 feet by 18 feet. The grounds are undulated, and command extensive views. A long tier of catacombs occupies an elevated position south of the chapels.—The contract for the erection of the baths and washhouses in Saul-street, Preston, has been let. The estimated cost of the building is about 6,000*l.*, to which will be added about 1,000*l.* for engineering fittings. It is intended to lay the foundation-stone in a few weeks.—On Monday week the large chimney at Messrs. Banks and Co.'s iron foundry, Chorley, fell to the ground, striking the centre of the foundry building, and dashing the part on which it fell to the ground, besides injuring the engine and boiler. A well had been sunk near the base of the chimney.—On the 24th ult., a portion of a mill at Oldham fell. The building had been giving way for some time. The workmen had just escaped before the gable and two bays of the mill, five stories high, with all the machinery on the upper floors, came down with a crash. The damage is estimated at 1,000*l.*—A colossal statue of Mr. J. B. Leyland, in bronze, with a massive pedestal, is to be erected at Halifax.—Arrangements, says the *Reformer's Gazette*, have been completed for enlarging the prison at Paisley: estimated expense from 9,000*l.* to 10,000*l.* The contractors for the mason-work are Messrs. Henderson and Co., of Glasgow.

HAMPTON COURT PALACE.—A "Sketcher" directs attention to the way in which the brick-work of the Tudor portion of Hampton Court is being scraped without occasion, whereby, as he says, its pleasant aspect is being destroyed.

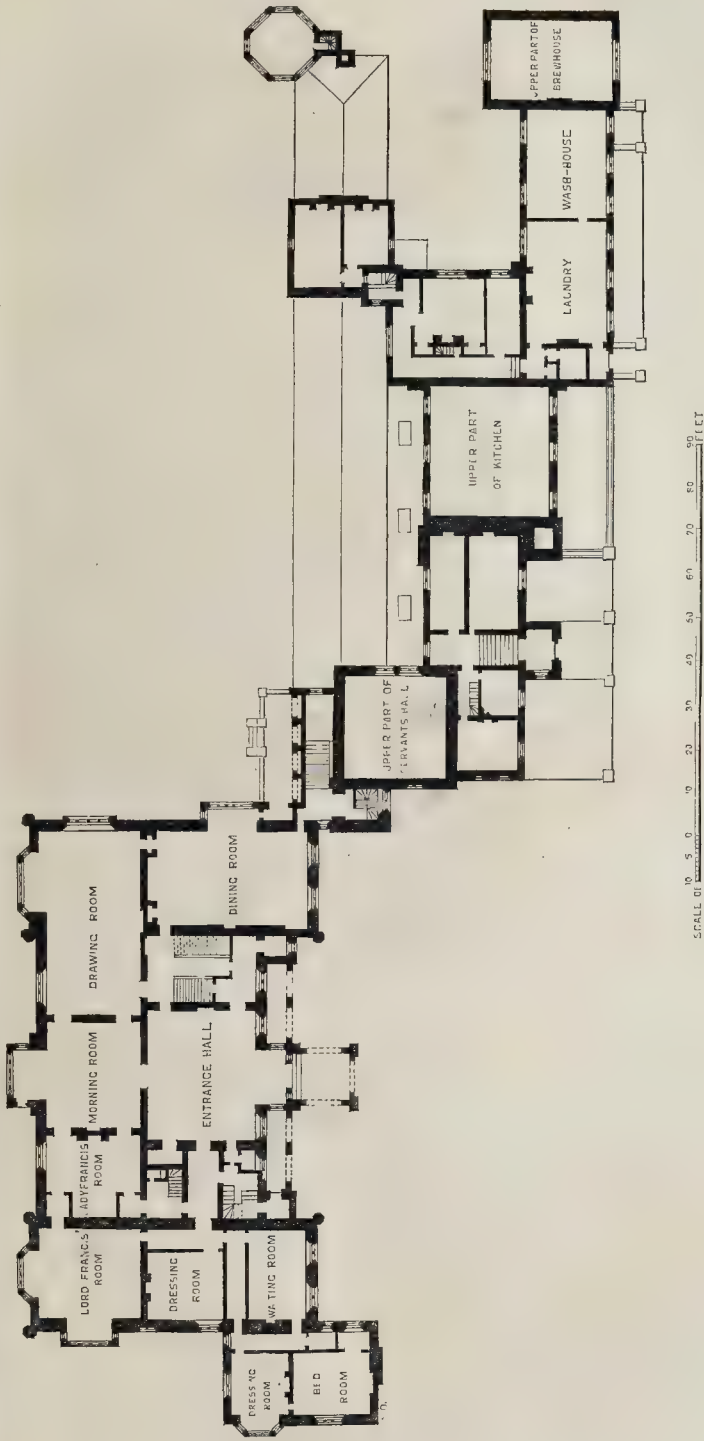
\* Amongst the subscribers announced we noted,—Mr. W. Cubitt, 21*l.*; Mrs. W. Cubitt, 5*l.* 5s., and Miss Eliza Cubitt, 2*l.* 2s. (well done, ladies); Mr. Grissell, 10*l.* 10s.; Mr. Piper, 10*l.* 10s.; Mr. Rolfe, 5*l.* 5s.; Mr. Grimsdell, 10*l.* 10s.; Mr. Bennett, 5*l.* 5s.; Mr. S. Bird, (annual) 10*l.* 10s.; Mr. Douglas Penant, (annual) 20*l.*; Messrs. Lee and Son, 5*l.* 5s.; Mr. Bushall, 5*l.* 5s.; Mr. Harding, North-end, 5*l.* 5s.; &c. About 400*l.* in whole.





WORSLEY HALL, NEAR MANCHESTER.—MR. EDWARD BLORE, F.R.S., ARCHT.





GROUND PLAN OF WORSLEY HALL.

WORSLEY HALL, NEAR MANCHESTER.

The country residences of the English nobility and gentry are an important class of structures, comparatively little known beyond their locality. The example we place before the public in the present number of the journal is Worsley Hall, the seat of the Earl of Ellesmere, which was

completed at the close of the year 1845, from the design of Mr. Edward Blore, architect. It was commenced in 1840, is of the mixed style of the end of the sixteenth century, and is mainly constructed of Houghton stone. The panelings of the principal rooms are of oak, and in character with the exterior of the building. The lodging accommodation is very extensive,—

far beyond the usual proportion to the reception rooms. The whole, including the grounds, terraces, &c., is a new creation. The plan shows the appropriation of the rooms, size, &c. Worsley, in the parish of Eccles, Lancaster, is about seven miles from Manchester. At Worsley-bridge begins the Bridgewater Canal, executed by Brindley, in 1760.



## THE STUDY OF ART IN ENGLAND.

THE following are portions of an address delivered at the opening of the North London School for Drawing, by Mr. Cave Thomas, the head master:—

Let it not be imagined, when deploring the dearth of opportunities for educating taste in this country, I am giving way to that unpatriotic depreciation of British talent so often indulged in. No: this sentiment emanates from a public uneducated in art, whose taste is yet in its infancy and unable to run alone, clutching with trepidation any support, even that of corrupt fashion. To this untutored condition we must attribute the neglect of native talent, the neglect of our fine art manufactures, the neglect of art education. The long and weary conflict with adverse circumstances of some of our greatest artists has been a fate so common, that it has come to be considered an essential passport to fame. The public forgets, that in neglecting genius it compels genius to neglect it: both are sufferers, but the public the greater, losing, as it does, all those years of unworthy employ to which it dooms genius in the infancy of its knowledge.

To an uneducated, and therefore indiscriminating, public, is also to be attributed the neglect of our art manufactures, when they had attained that high position some years since promoted by the enterprise and liberality of Messrs. Rundell and Bridge, Wedgwood, and a few others,—suffering the manufactures of the precious metals and earthenware gradually to degenerate into foreign fashions, or, rather, clumsy imitations of foreign fashions, and to which we may also attribute the incompleteness and trashiness of our fancy manufactures generally.

It has been the apathy of the public mind on matters of taste, too, which has caused the neglect of this branch of education in the schools and colleges of Great Britain, and of the establishment of suburban art schools. It is easy to say that the English manufacturer and artisan are deficient in taste; but only let the exhibition of it be demanded by discriminating wealth, and we vouch for a favourable result—that it will soon be responded to. I feel confident there is a mass of latent talent in this country awaiting more favourable circumstances to burst into flame. It is demand which influences the exercise of the faculties of that portion of the public dependent on the hire of wealth for its daily bread, and labour naturally asks why it should neglect the reader sources of employ to cultivate higher faculties, having little means and still less opportunities of doing so.

We are gratified, in contemplating the state of Great Britain at the present time, to find there are not wanting unmistakable signs of the dawn of a new era, even in matters of taste. Provincial schools of design and art exhibitions are becoming numerous—journals that never touched upon art, are now treating it as an important matter—art-unions are springing up—illustrated works are permeating the reading world, and manufacturers are employing in some few cases English, but more commonly German and French designers, of whom there are many hundreds in this country. This latter fact ought to warn you against being supine, and incite you to make the best use of the opportunities now offered for improving your tastes, seeing that the advantages which the French and German workmen derive from their local art-schools enable them to respond to the caprices of fashion even, with more ability than yourselves, and lead to their preference, to the detriment of national labour, which is diminished still further by the want of discriminating taste in the public, which allows it to be contented with slight work, requiring perhaps one-half or one-third the time necessary to perfection. This fact would hardly be worthy of notice if of rare occurrence; but when we witness the extent to which the system prevails, and its effects, it becomes a matter too important to be passed over. When we consider that a large proportion of the manufactures of this country are produced in half the time they ought to be, it is evident that in any given space of time they would require twice as much labour to perfect them. Now, as a given number of men could not very well double their hours of employ if perfection were required, it would be necessary to double

the number of employed, a circumstance which could not fail to act favourably on an overstocked labour-market. We do not confine our remarks, in this instance, to art manufactures only, but to manufactures generally; for in the dignity of perfection all human works are closely allied.

I have remarked upon the want of taste and the means of creating taste,—the disadvantage it is, and is likely to be, to the commonwealth in a mercantile point of view; but perhaps I have not yet laid sufficient stress on the pernicious and imperfect system of education from which the training of the two higher senses is discarded, and from which all these disadvantages proceed. Are they educated at Oxford and Cambridge? The answer is, No. Are they at any of our public schools, or schools generally? The answer is again, No. Does that deserve to be called education which leaves half our powers neglected? I answer, No. \* \* \* \* \* It is my firm conviction that the care which the minute and faithful delineation of an object requires is directly calculated to form those habits and tastes which are in intimate connection with private happiness, and are wanting to reform some traits of Vandalism in our national manners. If so, it is of paramount importance that the arts of design should receive due consideration in the curriculum of education, more especially of the less wealthy classes,—for, besides placing within their reach the pleasure derivable from the contemplation of graceful forms, it would contribute to secure that attention to the person and the dwelling which is so essential an element in domestic happiness, strengthening also that sense of self-respect which operates as a principle of repulsion to vulgarity and vice, and of attraction to courtesy and virtue. It is not, perhaps, the accomplishment itself that is of so much moment to the masses, but the training of the faculties and feelings incident to it to apprehend and appreciate things lovely, that is important. The habit is a security against the formation of vulgar manners, and against familiarity with disgusting scenes; and, taken into the economy of household life, it may throw an outward adornment over homes of rusticity and artisan employ, the moral influence of which is an end worth gaining.

## SIGHTS AND SCENERY.

*Vauxhall Gardens.*—Falke de Branté, who married Margaret, Earl Baldwin's mother, and built a mansion, or hall, in South Lambeth, little thought "Faukes-hall" would give name to the large district that now bears it, and that through the "New Spring Garden," formed there in 1661 ("a pretty contrived plantation," says Evelyn, in that year), it would gain a world-wide reputation.

According to Mr. Fillingham, who has made an extraordinary collection of documents relating to Vauxhall, or Fox-hall, the title of Spring Garden was continued till 1735; and fireworks began to be exhibited there about 1708.

Some of the old descriptions of the gardens would serve now: and we never saw the place looking better than it did a few nights ago, when we walked in to see the pictorial representation of the Kremlin at Moscow, which, as a fast young friend who was there said, gives, when the fireworks are going off, quite a new idea of the domestic habits of the inhabitants of Moscow. It is, nevertheless, effective for its purpose. To note what happened to us after, we might quote what Pepys said when he went there as long ago as 1668, with Harry Killigrew and young Newport,—"And so to supper in an arbour, but, Lord! their mad talk did make my heart ache."

Let us add, for the advantage of those who painted the picture, as well as of the visitors, that a church was built in the Kremlin in 1326; the "Granite Palace" rose in 1487; the clock tower of Ivan Valiki in 1600, at which time there were thirty-five churches in the Kremlin.

*Cremorne Gardens.*—What may be done by the scene-painter towards making an ugly structure fair to the sight may be seen here. Under the alliterative title of "The Polychrome Palace of Pavia," a very respectable piece of

tea-garden painting, puts another face upon an eyesore. The gardens themselves are very pretty, and apparently well conducted. The platform wants the carpenter.

At the *Adelphi Theatre*, Strand, Victor Hugo's "Notre Dame," which has done so much for the preservation of ancient buildings, is made the ground work of a new "Esmeralda," a broad piece of fun with two or three very striking scenes.

At the *Strand Theatre*, "The Philosopher's Stone" has two architectural scenes, shewing very considerable ability on the part of the artist, but marred by the want of knowledge of perspective. In the sixteenth century chamber-scene, for example (we are speaking to the artist for his own sake), the lines of the side of the chimney-piece run altogether differently from the lines of the room, with which they should range.

## METROPOLITAN WATER SUPPLY.

THE Health Commissioners, in their elaborate report on this momentous question, have proposed a scheme for the supply of pure soft water to the metropolis that must be admitted to have the merit of boldness and originality at least, if not of feasibility.

Deprecating the various evils inherent in the present radically vicious system, and especially the expensive and insalubrious hardness of the water supplied, as well as its injurious impurity from decompositive and other animal and vegetable impregnations, the intermittency of its supply, and the consequent waste of a proportion of it estimated from careful inquiries to be no less than 50 per cent. of the whole amount of 45,000,000 gallons a-day, supplied to the 288,000 houses in the metropolis, or rather to 270,000 only of these, causing not only unhealthy damp but serious dilapidations,—the commissioners, founding their scheme on the unanimous opinion of the engineering inspectors and others, on its partial practice already successfully carried out in Lancashire and elsewhere, and on the Ordnance survey, as well as on chemical analysis of the properties of 424 specimens of water from different sources, and other evidence,—now propose to supply the metropolis with an amount of soft and pure water equivalent to twice the actual consumption, exclusive of what is expended in worse than useless waste,—the proposed supply to be collected from the rain drainage of an area of 100 to 150 square miles of gathering ground, otherwise nearly useless, such as that lying east and west of a line extending from Bagshot to Farnham. The cost of the whole scheme, it is estimated, would be about one million sterling, and the metropolis could thus be supplied with pure soft, filtered, aerated, and, in fact, distilled water, in profuse abundance, though without waste, at the rate of 2d. a-week per tenement.

For the prevention of the enormous waste which has been proved to prevail under present circumstances, for the prompt extinction of fires without engines, and for other and important purposes, sanitary and otherwise,—it is proposed to substitute a constant supply at high pressure, so as to obviate the necessity of cisterns, barrels, &c., and to combine, ultimately, the system of drainage with that of supply, substituting tubular drains of small calibre, through which the soil and waste water will force their way, without opportunity of deposit, in place of the present more capacious outlets, which not only favour such deposits, but necessitate an immense waste of water in flushing, which it is the desire of the commission to do away with, more especially as the sewage, they conceive, can never be manageably turned to useful account on the great scale, nor the Thames purified, so long as it is allowed to continue. As to the purification of the Thames water, however, it is considered that even were that at once accomplished, it would not be desirable to supply the metropolis from such a source, the hardness of the water being a sufficient reason for rejecting it. As it is, the commission deem it an urgent duty to compel the abandonment of its use altogether as quickly as possible.

The saving derivable from a substitution of soft for hard water, even in the mere article of soap, or tea, is something quite enormous. The whole expense of washing alone is esti-



ated by the Commissioners at 5,000,000*l.*, an average of 1*s.* a-head per week, and the saving "would be probably equivalent to the whole of the money expended at present in the water supply." Besides the benefits of soft water in various processes of manufacture, &c., the encouragement to temperance in the supply of so pleasant and wholesome a beverage is not to be despised, and is what the Londoners have little conception of. Strangers who come to the metropolis from localities where so salubrious a draught as pure and even moderately soft water is customary, are often in drinking the metropolitan water, with a feeling as if the draught were a mere quench of lime, giving as little gratification, or quenchment of thirst, as the parched throat of the dreamer of draughts of water feels after swallowing imaginary bucketfuls. Hence it is that the metropolitans, knowing nothing of the delights of water drinking, have a settled at mistaken idea that it is water in the abstract that is unfit for human drinking. Hence it is that brewers make hundreds of thousands for their heirs to throw away.

ARCHITECTURAL PUBLICATION SOCIETY.

A GENERAL meeting of the subscribers was held on Friday evening, the 31st of May, to receive the report of the committee on the general affairs of the society, at the rooms of the Institute of British Architects, granted for that purpose. Professor Cockerell, R.A., took the chair, and there was a good attendance of members.

Mr. Wyatt Papworth, hon. sec., read the report of the committee, which commenced with an explanation and account of the obstacles to regularity in the issue of the publications of the society. The uncertainty of the income, and the non-performance of the engagements made by some of the gentlemen whose offers of assistance for text had been accepted, had been amongst the causes of delay in 1848 and 1849. The statement of accounts for the year ending 30th April, 1849, showed receipts of 615*l.* 11*s.*, the subscriptions of 491 members of the society; and expenditure of 460*l.* 3*s.* 2*d.* Of this 231*l.* 5*s.* 7*d.* had been paid for lithography. The balance in the hands of the treasurer was then 55*l.* 7*s.* 10*d.* For the year ending April 30, 1850, there appeared receipts—from 394 subscriptions and the last year's balance—of 469*l.* 1*s.* 10*d.*, with an expenditure of 292*l.* 17*s.* 8*d.*, and liabilities of 30*l.* 17*s.* 4*d.*, amounting together to the sum of 323*l.* 15*s.*, and thus showing a balance of 145*l.* 6*s.* 10*d.* for a third Part, the letterpress and its expenses.

Relative to the difficulty of inducing architects to write, Professor Donaldson pointed out the importance of architects reasoning out their thoughts, and of the advantages which followed the use of the pen. What were wanted now, he said, were principles which all could apply,—suggestions to set minds in commotion.

The Chairman having first complimented the Committee and the officers on their zeal, offered some observations on the same theme. It was to be regretted that we were so wholly imitative, and we scarcely knew what to follow. Our present position he considered Babelish and disgraceful. Advantage ought to be taken of all advances in knowledge, but this we did not do. Since the peace we had been deluged with novelties, and had taken whatever was pretty: what we now wanted was sounder criticism, and that we should only adopt what was good.

Mr. Thomas Little, as a member, expressed his satisfaction at the proceedings of the committee, and afterwards seconded a resolution to adopt the report, which was moved by Mr. H. I. Stephens. It was afterwards resolved, on the motion of Mr. Ashpitel, seconded by Mr. P'Anson, "That this meeting does not consider the society at present to be in a position to guarantee the effective continuance of such an important work as the 'Cyclopedia of Architecture,' referred to in the report, but requests that the list of 'terms' be continued, in order to complete that portion of a most desirable object."

Part II. of the publication for the year is issued: it contains thirteen valuable plates (two of which are coloured), from drawings by

Messrs. Heneker, P'Anson, T. H. Lewis, James Bell, John Johnson, F. Lawford, Sydney Smirke, John Davies (the Piazza Loretto), and J. M. Lockyer.

SCULPTURE IN THE 1851 EXHIBITION.

A WRITER in the current number of the *Journal of Design* says:—"Modern sculpture has been considered by the Commission as not having any adequate place of exhibition in London, and therefore it has been determined that it is to have the honour and opportunity, not accorded to painting, of being amply accommodated in the international Exhibition. We have the greater right, therefore, to hope that the occasion will assemble a more remarkable collection than has ever before been brought together in this country. We may hope that this collection will be select as well as large; and that each specimen received will be worthy of public and continental regard. For who would not rather contemplate an assemblage of a comparatively few excellent works, than to see them interspersed among many times their number of mediocre associates? The regulations on this point, put forth by the Commission, appear at present somewhat less precise than perhaps they will be made hereafter. They express that they will allow three works to be received from each living sculptor, and works of artists deceased within two years of the opening, with a view to their exhibition. But it is to be recollected that there are many materials in which the sculptor may work,—marble, stone, bronze, wood, the precious metals, &c. Is it to be understood that each artist may send in three works in each of these materials, or only three works in all, whatever be the material? The first would seem calling for too much, the latter, perhaps, for too little. Materials themselves are to be exhibited in the coming Exhibition, as well as their artificial treatment, and that art should be exercised in a variety of materials is evidently an object proposed to be encouraged by the coming Exhibition; therefore it may be well to allow the sculptor to send in works in any number of materials, but be restricted to send but one (*his best one*) in each. If, however, he is confined to but three works in all, would it not be well still to let him but send one only (*his best*) in each material?—for instance, one in marble, one in plaster, and one in bronze; or one in bronze, one in ivory, and one in the precious metals. This, however, would of course have no reference to what any manufacturer may have executed from a sculptor's design, which the manufacturer may send in as a specimen of his own manufacture, because, if that were the case, it would tend to defeat one of the main objects of the international Exhibition, the uniting of manufacture and art."

PALLADIO.

SINCE your remarks on Mr. Ashpitel's "Selections from Palladio," in the Academy exhibition, the following lines have been affixed to the frame by some person unknown.

"Ne spernas oculos dimittere, amice viator,  
Quod fuerit exigua picta tabella manu:  
Ne spernas, apud has tantas, si parva minorem  
Hanc sedem teneam, convenit iste locus:  
Ast tibi magis hominis jam grandia præbeo facta,  
Qui, post Romanos, primus in arte sua.  
Hæ sunt, quas clarus struxit Palladius sedes,  
Magnatum sedes, atria, templa Dei;  
Tot, tantas, tam pulchras, eximiasque decore,  
(Evo non ullo condidit unus homo.)"

ARTISTS IN PARIS.—In order to assist the Paris artists, the Government has authorized another lottery of works of art to the extent of 24,000*l.*

\* Translation:—

Disdain not, gentle friend, to cast thine eye  
On me, though painted by a feeble hand;  
And with such pictures, and such honoured men,  
Though in a lesser rank, I here am placed:  
A lowly seat begets a modest name.  
Still I afford the loftiest thoughts of him,  
The brightest since the palmy days of Rome:  
These are the works of great Palladio's hand,—  
The domes of princes, halls of justice, churches  
Of God. So many, and such mighty works,  
So fully planned, so noble in their beauty,  
In no one era has it e'er been given  
To one sole hand to be the honoured author.

Books.

*Church Walks in Middlesex; being an Ecclesiologist's Guide to that County.* By JOHN HANSON SPERLING, B.A. London: Joseph Masters, 1849.

*A Hand-book of English Ecclesiology.* Published by the Ecclesiological (late Cambridge Camden) Society. London: J. Masters.

THE intention of "Church Walks" is very good. It is addressed to young ecclesiologists and others who may wish to become acquainted with the churches of Middlesex, many of them little known. "Middlesex cannot boast of such large and beautiful ecclesiastical edifices as many of our other English counties; but at the same time it abounds with plain and excellent examples of the different styles, well adapted for the study of beginners." When we say, however, that the book is a very small volume of 200 pages of rather large type, it will be seen that it is quite incommensurate with the subject and intention. This is much to be regretted: an incomplete book on any subject has the effect of stopping for a time the production of a complete one.

The book is illustrated with some etchings by Mr. Truefit. The second book at the head of this notice, "Hand-book of Ecclesiology," is a reprint, with great additions, of the "Few Hints on the practical study of ecclesiastical architecture," issued by the late Cambridge Camden Society. It will be found very useful by church visitors.

*Architectural Sketches, Italy.* Drawn on the spot. By T. C. TINKLER, Architect. 49, Great Marlborough-street. No. 2.

THE second Part of Mr. Tinkler's sketches is published, and comprises an ornament from St. Gregorio, Monte Celio, Rome; villas, &c., from the Campagna; details from the Villa Madama, and villa and fountain in the Borg-hese gardens. It is a considerable improvement on No. 1.

Miscellaneous.

MONUMENT TO JOHN BUNYAN, IN BEDFORD.—An edifice has just been completed on the site of the old meeting-house and of its ancient predecessor, the "Barn of John Ruff-head," where the glorious dreamer himself administered to his townsfolk. The *Art Journal* of the current month gives the following particulars. The style of the building is that in use immediately after the time of Inigo Jones and Sir Christopher Wren, of which there are but few good examples in the country, and those generally by Gibbs, the architect of St. Martin's Church. The material of the base, which shows about 4 feet above ground, is hammer-dressed limestone from a neighbouring quarry, capped with Yorkshire plinth, giving a footing to the pilasters. The superstructure is red brick with stone dressings: the two side elevations are each divided into six compartments, by pilasters with stone mounted bases, and capitals surmounted by a stone architrave and modillion cornice. The front is elevated on a basement of three steps, extending the whole width of the building, but divided by massive blocks to receive the pilasters, which are uniform with those on the side elevation. In the centre compartment is the principal entrance, with semicircular head in rusticated masonry. The architrave corresponds to the side elevations, and is surmounted with a pediment. The outer dimensions of the building are 80 feet by 50 feet, and the height 32 feet from floor to cornice. The ceiling is paneled, and the centre division is covered to give an additional height of 7 feet. The building is lighted by a bude-light chandelier. The architects are Messrs. Wing and Jackson, and the builders, Messrs. Berrill, Maxey, and Ward, all of Bedford. It cost in its erection 3,700*l.*

GROWTH OF LONDON.—Returns just published by order of the House of Commons, show that the total number of new houses built within the metropolitan police districts, since the 1st of January, 1839, up to the present time, amounts to 64,058; and the number of streets formed, to 1,652, 200 miles in length.



**THE NAILERS' STRIKE.**—A nail master, in *Aris's Gazette*, states, among other reasons why the masters persist in their intention to reduce wages, that the factors and "foggers" who pay in truck are underselling them in the markets, and compelling them to the reduction of wages; but that there are other reasons for the present crisis, among which not the least is the immense extent to which machine cut nails are now being made, and the competition also with articles of foreign produce made at wages very considerably lower than their own. He calls on the men to assist in putting an end to the truck system, but states, that with accumulated stock and small demand, it is impossible for the money-paying masters to meet the demands of the men. This nail master corroborates our recent report of the state of the iron trade, by remarking, that "iron has fallen 10s. to 15s. a ton in Staffordshire," and, indeed, that there is "a fallen market as regards all goods connected with the iron trade, with iron falling still lower," and that "wrought nails can have no immunity from the like result."

**RAILING ABOUT ST. PAUL'S.**—At a meeting of the City Sewers Commission, a letter from the Dean and Chapter of St. Paul's, finally negating the proposed improvement, was read by the clerk, on which a discussion followed, with a very interesting speech by Mr. Blake, in which he showed that the railing had not been directed by Wren himself, and that his desire had been to exhibit it open and unencumbered on all sides, with approaches worthy of its architectural character. Mr. Blake also alluded with regret to the circumstance that the interior should be turned into a mere money-getting puppet-show, instead of being thrown open for the improvement of taste. He read some records connected with the building, and concluded by moving to apply for an Act of Parliament to carry out the proposed improvement. This was seconded by Mr. Barber, who expressed his surprise and regret that Mr. Cockerell, who had warmly approved of the plan at first, had subsequently condemned and opposed it. The motion was unanimously agreed to.

**CANAL LOCKS SUPERSEDED.**—On the Monklands Canal, at Blackhill-locks, the waste of water, time, and labour, have been obtained by the substitution of a steep incline, with rails, and water-tight cradles, into one of which latter the boat is floated, when it is drawn up by a wire rope, worked with drums, by the power of a steam-engine, aided by the descending cradle filled with water. Thus in five minutes the half-hour's work of eight locks, costing hitherto 100*l.* a-day, is done at comparatively little expense, and with a waste of no more than the water displaced by each boat, when floated into its cradle. Mr. Leslie, of Edinburgh, the engineer of Dundee Harbour, has adopted this idea from American practice or experiment.

**SELF-GENERATING GAS-LAMP.**—An accident having occurred with one of Holliday's lamps, whereby a woman was severely burnt by the naphtha falling from it in an inflamed state, and the seller having refused to take back the article as an imperfectly constructed one, an action of damages was brought at *nisi prius*, when evidence was led to the effect that the joints were merely soldered, and not brazed, as they ought to have been,—the inference being that the naphtha had escaped in consequence. For the defender it was urged, that it must have been through carelessness in putting up the lamp that the naphtha was spilt. The jury gave a verdict of 10*l.* damages.

**FITZWILLIAM MUSEUM, CAMBRIDGE.**—The Syndicate, in their first annual report to the senate, state that the new building has been carefully examined by the curator, and found to be without settlements or cracks, and firm and secure throughout, and that the museum has been safely removed into it. Arrangements have been made for the Disney collection in the large west room. The museum has been visited by 40,848 persons during the past year, and not the slightest injury, misconduct, or annoyance has occurred.

**WESTMINSTER NEW BRIDGE.**—The Committee have decided that the Standing Orders may be dispensed with in the case of the promoters of this measure for a temporary bridge at Westminster.

**PROJECTED WORKS.**—Advertisements have been issued for tenders, by 19th inst., for the erection of the carcass of a public house, as also of two shops, at Upper Holloway; by 13th, for finishing two houses at Islington; by 13th, for the erection of a set of farm-buildings, near Maldon, Essex; by 15th, for taking down and rebuilding seven houses at St. Luke's; by 27th, for erecting a new wing to the Gloucester County Lunatic Asylum; by 26th, for finishing three houses at Hastings; by 18th, for constructing about 2,700 feet of glazed stone-ware pipe drainage at Upper Holloway; by 29th, for the erection of St. James's Church, Ogley Hay, Wolverhampton; by a date not specified, for construction of some wrought-iron gates in Gothic work, and wrought-iron vanes; by 13th, for construction of additions to bridges at Stratford, Essex; by 15th, for the several works to be done in erecting a public building at St. Mary Cray, Kent; by 14th, for the addition of one or two wings and alterations to the Royal South Hants Infirmary; by 10th, for constructing a tunnel or conduit at Drum-bowie, Shots, near Glasgow; by a date not specified, for laying lines of cast-iron pipes for the Glasgow Water Company; by 15th, for erecting stables and out-buildings at Oring-bury, Northampton; by 15th, for the restoration and alteration of the endowed school at Burton Latimer, Northampton; by 14th, for works in erecting a farm-house at Hannington, near Holcot, Northampton; by 25th, for construction of about 1,410 yards of wharf wall at Birkenhead Docks; by 13th, for the supply of 140 tons of cast-iron sleepers for the York and North Midland Railway; and by 15th, for the supply of materials and labour, in various branches of the building trades, for the Vestry of St. Marylebone,—separate tenders.

**PIMLICO.**—The derivation of this word is explained from the following passage in a rare (if not unique) tract, entitled, "News from Hogsdon, 1598:"—"Have at thee, then, my merrie boyes, and hey for old Ben Pimlico's nutbrowne." Pimlico kept a place of entertainment in or near Hoxton, and was celebrated for his nut-brown ale. The place seems afterwards to have been called by his name, and is constantly mentioned by our early dramatists. In 1609 a tract was printed, entitled, "Pimlico, or Runne Red Cap, 'tis a Mad World at Hogsdon." Isaac Reed (*Doddsley's Old Plays*, ed. Collier, vii. 51) says:—"A place near Chelsea is still called Pimlico, and was resorted to within these few years, on the same account as the former at Hogsdon."—*Notes and Queries*.

**RAILWAY TRAFFIC.**—The traffic receipts on railways in the United Kingdom during first 20 weeks of present year amounted to 4,262,902*l.*, or 793*l.* a-mile,—of 1849, to 3,761,632*l.*, or 827*l.* a-mile,—of 1848, to 3,330,907*l.*, or 916*l.* a-mile,—of 1847, to 2,933,305*l.*, or 1,034*l.* a-mile,—of 1846, to 2,550,775*l.*, or 1,196*l.* a-mile. The length of railways open over which that traffic was carried, in 1850, was 5,470 miles; in 1849, 4,644 miles; in 1848, 3,756 miles; in 1847, 2,990 miles; and in 1846, 2,202 miles. There is a considerable improvement in the traffic receipts per mile during the present year, attributed mainly to comparative falling off in mileage opened.

**ROTHERHITHE.**—On Saturday, the 1st inst., a new chapel at Rotherhithe was consecrated by the Right Rev. the Lord Bishop of Winchester. It is dedicated to St. Paul; and is in the Early English style, consisting of nave and chancel without aisles, having a bell gable at west end. The porch is on the south side, and there is a small vestry at the north-east angle. The sittings are all free, with accommodation for 300 persons. Mr. Wm. Beaton was the architect. We have not seen it. This is the fourth church erected in the parish through the exertions of the rector, the Rev. Edward Blick.

**CONVERSAZIONE.**—Lord Londesborough has issued cards for a limited morning meeting at his residence on Monday, the 10th. A mummy from Thebes is to be unrolled.

**INFLAMMABILITY OF ASPHALTE.**—With reference to a recent occurrence in Herts., the Seyssell Asphalt Company request us to state, that, as appears from a correspondence forwarded, the tank in question was not lined with the bitumen sold under their patent,

**IDEAL OF THE VATICAN.**—Had the Vatican been built from a regular design, or on any intelligible plan, it might probably have appeared less wonderful than it is, because the mind would have been able to form at once a conception of the whole. At present, it appears like one of the enchanted palaces of the East, in which you might wander for ever without emerging from the labyrinth. You mount, you descend, you turn to the right, to the left, and everywhere find yourself in a blaze of grandeur, consisting principally of the fragments of the ancient world; and if you have the courage to compare the productions of our present civilization with those of our predecessors, you will be compelled to admit the immense superiority of the latter. The statues of Buonaroti, Canova, Thorvaldsen, and others, literally dwindle into insignificance before those of the third-rate sculptors of antiquity; and in vases, candelabra, &c. we have nothing at all to compare with what has been left to us. Taken altogether, the Vatican ought to suggest to its owners ideas of humanity and peace, and of profound veneration for human genius, which has created that universe of beauty and grandeur by which they are surrounded. A description of the Vatican would be an account of all the arts of ancient and modern times, which have there piled up their treasures in profusion.—*Chambers's Journal*.

**ARCHÆOLOGICAL INSTITUTE.**—The annual meeting, to be held at Oxford, will commence Tuesday, June 18th, and terminate Tuesday, June 25th. On the 21st, Professor Willis will deliver a discourse on the "Archæological History of Christ Church Cathedral."

**TOWN MUSEUM AT LEICESTER.**—A curious relic found on the site of ancient Carthage, and like the lid of a rock tomb or sarcophagus, with symbolical figures not yet explained, has been presented to this museum by the Duke of Rutland, together with a number of books, including *Inigo Jones's Designs*, *Dugdale's Monasticon*, &c.

**OBSTRUCTION OF LITTLE EXMOUTH-STREET, ST. PANCRAS.**—Some correspondents complain that this street has, for the last four weeks, been converted into a stone or paving yard, for the exclusive behoof of streets adjoining, and although the stone-yard of the trust is within 200 yards' distance.

**SOMEBODY WRONG.**—The following are the tenders delivered for building a church in the Victoria-road, Kensington:—

Higgs and Son.....	£5,400 0 0
Todd.....	4,950 0 0
Bird.....	4,849 0 0
Locke and Nesham.....	4,530 0 0
Smith and Appleford.....	4,497 0 0
Kirk.....	4,475 0 0
Rigby.....	4,450 0 0
Haward and Nixon.....	4,375 0 0
Holland.....	3,373 0 0
Myers.....	3,540 0 0

#### [ADVERTISEMENT.]

**CUTTING SLATES BY MACHINERY.**—Mr. Mathew, one of the partners in the well-known "Rhwybyddir Slate Company," has just patented an apparatus for cutting slates from the rough, as well as for cutting them into various shapes, called "fancy slates." This apparatus, from what we hear, is likely to prove itself of great advantage to the Company, as it not only cuts a much larger quantity, but at considerably less expense than can be done by hand, and at the same time the slates are so perfect in shape as not to require any "after-dressing" by the slater before putting them upon the roof. The "fancy slates" are highly ornamental, and whilst they cover with equal security the same space as the square ones, require less timber to support them, and are much less expensive in transit.

#### TENDERS

For Sunderland Baths and Washhouses—engineering work not included; Mr. T. Oliver, jun., Architect:—

	Whole work, Mason, &c.		Joiner and Carpenter.	
	£.	s. d.	£.	s. d.
W. Tunc and Son.....	1,395	0 0	.....	.....
Winship and English.....	1,227	0 0	.....	.....
J. Hamilton.....	1,137	0 0	.....	.....
W. Scott.....	1,060	0 0	.....	.....
A. Wardropper.....	1,025	0 0	380	0 415
M. Bell.....	.....	731	0 0	.....
Carter and Swinburne.....	.....	657	16 9	.....
R. Maxfield.....	.....	.....	409	10 0
W. Lewis.....	.....	.....	399	0 0
P. Maddison.....	.....	.....	350	0 0

\* The slaters' and painters' and glaziers' works are omitted here.











# The Builder.

No. CCCLXXXIV.

SATURDAY, JUNE 15, 1850.

**B**EFORE this number of our journal appears, the 245 plans for the building proposed to be erected in Hyde-park, submitted to the Commissioners, and reported on by the Building Committee, as mentioned by us last week, will be accessible. The plans are arranged in alphabetical order in the large meeting-room at the Institution of Civil Engineers, Great George-street, Westminster, and cover not merely the walls to a sufficient height, and a table around the walls, but both sides of two screens extending nearly the whole length of the apartment. Observant visitors will view with interest the singularly varied ways in which different minds have endeavoured to solve the same problem,—the variety in the ground plans suggested to fill the same area, and to meet the same requirements. "So many men, so many minds," is an old saw; and this they will find still further illustrated when they remember that, amongst this large number of proposed ways of effecting a given object, the six associated minds appointed to judge them did not find what they thought the best way,—nor was it expected that they would. Visitors will further not fail to observe the elegance of drawing which characterizes nearly all the *projets* submitted by foreign architects,—the much larger amount of care and thought bestowed on the preparation of them than on the majority of the designs by our countrymen. There is such uniformity in the manner of drawing, &c. observable in several from abroad that they might almost be considered the work of the same hand. The plans are mostly of ingenious intricacy, and several of the elevations display great taste and invention. But having said this we are bound to add that they are mostly mistakes, very magnificent mistakes some of them, but still mistakes to the full extent of the word, scarcely accordant with the instructions, and wholly aside the thing actually wanted. This applies not the least strongly to the designs selected by the committee for "higher honorary distinction,"\* and it will be in respect of this fact that the committee will come into collision with some of the unnoticed competitors. Take for example the design of M. Le Père (Paris): this seems to be for a permanent building, filled with domed and polychromed chambers, which could scarcely be erected by the time the Exhibition is to open. M. Cailloux's elegantly drawn design, again, is for a permanent Italian building; so, too, M. Botrele's harmonious plan; and M. Henard's elevation with its numerous minarets is simply an architectural sport or play.

In one hasty view we have not been able to detect the principles which guided the committee in the selection of the eighteen names entitled to distinction; but certainly they could not have been governed by the considerations which have guided them in framing the adopted plan,† namely,—the provisional nature of the building; the advisability of con-

structing it to be available for other purposes; and extreme simplicity demanded by the short time in which the work must be completed.

This will be further evident on comparing with these selected designs the plan determined on by the committee, which we now have the pleasure (first) to lay before the public.\*

We feel it would be unjust to impugn, on first view, a decision, to arrive at which cost the committee twelve or fifteen lengthened sittings. We are simply stating a question that naturally arises, and which has already been put to us by several correspondents and competitors who have not seen the plans, and judge only from the report we reviewed last week. A part of one of these letters will serve to show the prevalent feeling:—

"When the committee issued their instructions (says the writer), they at the same time pledged themselves, that when a plan should be decided upon by them, they would publish a report, stating the names of those authors of plans, whose ideas they might find it expedient to avail themselves of. The report has come. In making it, the most satisfactory course would have been to give, in the first place, a practical description of the approved plan, enumerating its several leading features in construction and arrangement, then to have classified and arranged the 245 suggested plans according to the number of selected features which each contained, placing the names of their respective authors under each class in the report, headed by a brief note of the peculiar features of that class, followed by a list of those which contained none of the selected features; thereby at the same time doing common justice to all contributors, and furnishing a direct index to those authors most deserving of merit, by being able to discriminate which had contributed the greatest number of useful and practical ideas.

Instead, however, of pursuing some such system as this, the report leaves the public completely in the dark as to the peculiar merits even of those contributors selected for reward.

Part II. contains, what I suppose, is to be taken as the best exposition of the merits of contributors that the committee can give, which commences by stating in a tone of commendation, that 'not confining themselves to suggestions only, which were invited by the programme, a large proportion of them are remarkable for elaboration of thought and elegance of execution.' This, I would contend, is clearly a breach of the specified conditions, viz., that suggestions only were to be given; that the plan or drawing sent in, was to be a mere outline sketch, upon a single sheet, and the committee even recommended that it would be most convenient merely to trace it upon the common paper on which the 'plan of site' was supplied to the public, a space being left upon the sheet for sketching any sections or elevations that might be necessary to illustrate the design; and that a written description limited also to 'a single sheet,' was all the exposition of their ideas that authors would be allowed to give. With these conditions before them, the commendation of the committee in the above case is a palpable act of injustice towards others who, very properly observing the letter of those conditions, have been debarred from developing their talent, by producing 'elaborated designs, elegantly executed.' The report goes on to state that, 'our illustrious Continental neighbours have especially distinguished themselves (in designing a temporary building for an exhibition), by compositions of the utmost taste and learning, worthy of enduring execution,—examples of what might be done in the architectural illustration of the subject (the conditions strictly enjoined contributors not to enter into architectural detail), when viewed in its highest aspect, and, at all events, exhibiting features of grandeur, arrangement, and grace, which your committee have not failed to appreciate." It then places in contradistinction to these—no doubt admirable, but—out of place productions of architectural genius, the 'prac-

tical character of the designs of our own countrymen,' which it states, 'as might have been expected, has been remarkably illustrated in some very striking and simple methods, suited to the temporary purposes of the building, due attention having been paid by them to the pecuniary means allotted to this part of the undertaking.' Yet, notwithstanding this comparison, clearly and indisputably in favour of our own countrymen, as regards the object sought and the conditions stipulated by the committee, we find by the selected list of those authors who are to receive the 'highest honorary distinction' the commissioners can award, that the committee can only discover, out of 195 English and 38 foreign contributors, three Englishmen entitled to reward, the remaining fifteen out of the eighteen selected being foreigners; or, as regards the whole numbers, in the proportion of 1 to 65 of 'our own countrymen,' the authors of the 'striking and simple methods,' so admirably 'suited to the temporary purpose of the building; and 1 to about 2½ of foreigners, who, in designing for a temporary building, to be simple, cheap, and readily-constructed, have so overshot the mark as to produce 'compositions' commendable only for 'the utmost taste and learning, and worthy of enduring execution.' Surely something must be wrong here; either the report or the selected list: possibly both.

In conclusion, I cannot help avowing the opinion that a wrong, though I believe unintentionally, has been done to many of the 240, who so readily and 'generously' responded to the call, for their ideas; more particularly as I know, from personal inspection, that at least one of the plans altogether omitted from the report contains *five* of the leading features of the approved design.

It is not too late to make amends, as it is quite competent for the committee, when their approved plan is published, to accompany it by a supplementary report, classifying the plans in some such order as I have suggested, and thereby do justice to all the contributors, without confounding the reward due for the really useful suggestions, with that sought by those who have distinguished themselves by displaying their eminent architectural attainments, irrespective, and even in violation, of the chief conditions of the competition.\*

"T."

The plan submitted by Mr. Bellamy comprises six equal blocks, for capability of extension: the roofs are formed of rolled and angle iron covered with corrugated iron, the material proposed by the majority of the competitors. The ribs extending from a central portion over the aisles are made to balance the former. The elevation makes little pretension to design.

—Mons. Hector Horeau's design is for a building mainly of glass,—a winter garden, in fact,—and displays much ingenuity. The iron ribs for the roofs are arranged so that for the whole of the buildings, although of varying span, only three castings, it is said, would be necessary. —Mr. Bardwell has a central dome of 150 feet in diameter: the entrance is by what the author describes as "an ostastyle, triprostyle, and polystyle, pedimented portico." —Mr. Baly's plans afford a strong contrast to those of the French artists: he has fallen exactly to the opposite extreme, and would have the building consist simply of along series of railway sheds, all of saleable sizes, devoid of architectural or constructive

\* Another of our correspondents, Mr. Elliott, says:—"It has long been a just subject of complaint by the profession that, in competitions, those who the most disregarded the instructions of committees, have been but the more likely to be selected by them. Now, it will be a very discouraging thing if a committee of professional men have themselves fallen into the same error,—an error into which they clearly will have fallen, if, after especially confining the attention of competitors to the production of a good, cheap arrangement, they have selected for 'honourable mention' designs on account of their architectural features, rendering 'them worthy of permanent execution,' a point on which we were not called on to compete—a point which must render such designs utterly unfit for the intended purpose of a temporary shelter for the real objects of the exhibition. I think those who compare the report of the committee on the plans with the previous instructions for the preparation of those plans, will find some difficulty in reconciling the one with the other: an equal difficulty will occur in fitting the several clauses of the 'general requirements' to a dome of 200 feet diameter, the cost of which, it strikes me, will prove at least ten times that of the sort of covering for such a given space which these 'requirements' imply."

\* See p. 265, ante.  
† See p. 265, ante.

\* See pp. 292 and 293, in our present number.



feature: it would be equally economical and ugly.—Mr. Brandon has four large domes, producing a picturesque and costly pile: the circular arrangement is not expedient.—Mr. Gearing proposes a suspension iron-wire tent, ingeniously ugly.—Mr. C. H. Smith adopts the suspension principle in another shape.—Messrs. Turner's proposal we described at some length before the competition.—One designed by Mons. Thummeloup is Gothic,\* some Hindoo! and some in a mixed style, amusingly indicative of a desire to do justice to all times and countries in the same elevation.

The plan, elevations, and sections which we have engraved of the proposed design (although necessarily prepared in haste, that we might give our readers the advantage of early information on the subject), will explain themselves, and be found in accordance with the particulars we printed last week.† The central entrance will be exactly opposite to the Prince of Wales's Gate, in the Kensington-road, which is obviously desirable. But as this gate is not *exactly* in the centre of the plot of ground to be covered, the majority of the competitors seem to have missed this point, preferring to keep the building the same length on each side of the entrance.

The western half of the building will be devoted to machinery and raw materials; the eastern portion to manufactures and the plastic arts, to which latter also the great hall is to be appropriated. The refreshment places are amidst the clumps of trees. In the brickwork, externally, some variety of colour will probably be produced.

#### ON THE PROPRIETY OF THE APPLICATION OF CEMENTS, OR OTHER ARTIFICIALLY FORMED MATERIALS, TO THE EXTERIORS OF BUILDINGS.‡

It is not, I believe, because there exists among our countrymen any lack of mind to conceive, or of constructive skill to carry out the most gigantic undertakings, that so comparatively small a number of buildings, remarkable for beauty, for originality, or for grandeur of design, have lately been produced; but partly because men's minds have been directed more towards other objects than the arts; partly because the carelessness of the public, and the unaccountable apathy of the profession, have allowed a small party to assume the direction of our art, and to introduce a movement of retrogression to the style and fashion of a former age, which must, I fear, if not soon checked, prevent, for some long period, all progress and improvement. And it is strange and unaccountable that architects and architecture are favoured with so small a share of public consideration in the present day, when it is remembered that, whilst in almost everything connected with our social condition, there has been manifested the strongest determination to encourage progress and improvement—those who profess to be the patrons and supporters of this really great and noble art, have exhibited an equally strong determination to go backwards, to prevent, so far as in them lies, the introduction into the ecclesiastical edifices of the nineteenth century, a single form or feature which has not been copied from some mediæval building, and even to disfigure the windows of our churches with such representations of the human form as were produced by the old glass painters, because they were unable to give more correct delineations.

Professor Cockerell, in (I believe) his fifth lecture of last session, at the Royal Academy, speaking of the fashions which have prevailed in architecture, is reported to have said:—

\* Apparently not in the lists issued by the Committee. One "Contributor of Designs" asserts that many who sent in designs are not named in the lists published. We may correct a further error in the list which attributes a design, honourably mentioned, to Mr. Bouse; it should be Mr. H. J. Rouse.

† These should be referred to.

‡ Continued from p. 267, ante.

"The proofs of this fact (fashion in architecture) abound. Churches were Grecian, and for the last twenty years have been Gothic; intensely Roman Catholic. The sense has been wanting to understand that we do not want a Greek temple for the reception of a Cryselephantine statue, nor a Roman church for processions, and a sight only of the eucharist; but a Protestant auditorium, suited to the Anglican ritual, to which great purpose all form of dress, of whatever order and fashion, must bend and adapt itself."

In the opinions thus expressed by the learned professor, I believe that many thousands of his countrymen do most cordially agree. Without the slightest intention of making any disparaging remarks on the labours of those architects who have with so much care and skill sought out and given correct and beautiful illustrations of the structures and architectural details of the Middle Ages, I would respectfully suggest that the time has now arrived when the efforts so strenuously made in obtaining intelligence on these subjects may well be slackened, and the talents of those gifted individuals be directed to investigations which may result in the production of novelty, beauty, fitness in design, of greater economy, combined with durability and beauty in the construction of our buildings,—in adapting to the wants of the existing generation those great discoveries in physical science, which may, and ought to, increase so largely the diffusion of comfort and rational enjoyment amongst all classes of the community, and in making our age and country as remarkable for the dissemination of a love of true art amongst the masses of the people, as it is for an amount of commercial energy and enterprise, which stand unrivalled in the annals of the world.

The homes of England have now for many ages been considered as worthy of our best attention, and no small portion of that industrious perseverance, for which our countrymen are justly celebrated, may be attributed to the desire of possessing a commodious and healthy dwelling, which so extensively prevails amongst them. There was a time when men cared little whether or not these homes were situated in the country, so that they contained the requisite accommodation for their families. But this indifference to position, which some time before the introduction of railway travelling had been gradually lessening, has since the development of that wondrous system almost wholly disappeared; and men of all classes and conditions, influenced mainly by the facilities for travelling which are now placed within their reach, appear determined to find or to build in some rural district such habitations for themselves and for their families as shall combine, with every provision for comfort and convenience, as much of symmetry and beauty as the talent of their architect and the means at their disposal will allow. Whilst, however, men of various ranks and stations are eagerly bent upon obtaining the unquestionable advantages of a country residence, and are disposed, in many cases, to incur for the attainment of this object such an expenditure (however large) as may be really necessary, they are almost invariably unwilling to make any considerable addition to their outlay, either for the purpose of building or casing their houses with stone instead of artificially formed materials, or for the introduction of features which, although generally found in ancient buildings, are now from changes and habits and modes of living, no longer useful. That this feeling, whether right or wrong, does very extensively prevail, not only among the professional and trading portions of the community, but that it is also found in many cases to exist among those who are possessed of high rank and station, must be well known to many members of this Institute.

Now if we admit that a dry, commodious, and well-arranged house does very materially assist in promoting the health and happiness of those who occupy it; that the present cheap and easy mode of travelling is leading to a very large increase of private dwellings in the country; that those by whom these dwellings are erected, although for the most part anxious to combine convenience with beauty, will not consent to any considerable increase of expenditure in the employment of natural instead of artificial materials, when the latter are well

adapted for the required purpose, and possess both durability and beauty; and that in many localities no stone or bricks can be obtained which, of themselves, are capable of excluding rain or of resisting the destroying influences of frost,—it must, I think, be also granted, that few subjects can be more deserving of our best attention than those artificial coverings or skins which are in many cases really indispensable, and might in many others be most advantageously employed.

To those objections which are made against these artificial coverings on account of the expenses said to be incurred in reparations, and in frequent repetitions of colouring or painting, I attach but very little weight, because my own experience has convinced me that if the right materials are employed no painting or colouring will be required, and that the total cost of reparation (when the materials are of good quality and the work well executed) does not amount to anything like one per cent. on the original cost, within five years from its completion; and after that period has elapsed, I believe that its durability for fifty, seventy, or even a hundred years, may very safely be predicted. That the extent of durability and adaptability which artificially-formed materials possess, or which by further improvements and discoveries may hereafter be obtained, is the really important question, it seems to me seriously to doubt; for it surely never can be seriously asserted that if by an expenditure of 1,000*l.*, or the amount of labour which that sum represents, we can obtain in an artificial material more warmth and greater freedom from damp internally, with as much beauty and durability externally, as can be produced for 4,000*l.* in stone, we are to adopt the latter, and reject the former. Shall we not then act like faithful stewards if, in many cases, when called upon to prepare designs for the dwellings of our countrymen—buildings which are to be numbered amongst the homes of England—we devote the money which might be expended in an external case of stone to the increase of internal accommodation, to the enlargement and proper decoration of the apartments in which our clients and their families are to spend by far the larger portion of their time, to rendering the building proof against the ravages of fire, to providing copious supplies of water and numerous accommodations and conveniences which, although required by the habits of the age, and essential to the comfort and well-being of the tenants, are yet not always found even in the most costly of our houses.

As to the peculiar properties, the excellences, or the defects of the various cements and artificially-formed materials to which the attention of the profession is so frequently solicited, it is not my intention on this occasion to say much. There is, however, one material which can perhaps scarcely be called a cement according to the general acceptance of the term, to which my attention has been a good deal directed, and which has been very extensively used under my directions. It is one with which most are familiar, and I should not venture to offer the few remarks upon it with which I am about to trouble you, if I did not believe that I have had more than ordinary opportunities of testing its capabilities in various ways, and in remarkably exposed situations. As it is one, moreover, with which manufacturers of cements have little or nothing to do, the processes required in its preparation being extremely simple and inexpensive, whatever I may say in favour of its durability and beauty, will not tend much to the advancement of any particular interest.

This material, usually known as stucco, is, in reality, nothing more than mortar, formed either of blue lias lime, ground or slaked, and mixed with pounded slag, from the smelting furnaces; or of the grey stone lime, so extensively used in London, ground and mixed with clean, sharp, carefully washed, siliceous sand, in the proportion of one part of lime to three parts of sand, excepting for the outer surface or facing, where nearly equal parts of lime and sand are generally used. The lime and sand (whether siliceous or metallic) should be mixed well together, in small quantities, and applied immediately to the work, in order to insure success, should, in all cases, be first well saturated with water. With this mortar, formed in either of the two ways which I



have mentioned, and used by experienced and skilful workmen, not only may a durable casing impervious to water be obtained, but mouldings and enrichments of all kinds can be also executed with a sharpness and delicacy of finish which it is impossible to surpass.

In a building which was erected about seventeen years ago, and occupies a very elevated and exposed site, on the borders of Hampshire, not far distant from the sea—the capitals and bases, and the flutings of the shafts of the columns (which were executed in a most masterly manner, and with a degree of accuracy and truth, as to encastrés and details, which left nothing to be desired), remain as yet uninjured. And the arrises of the fillets between the flutes, even of those columns which are exposed to the south-west, without protection of any kind from the violence of the gales of wind and rain, with which, from that quarter, we are so often visited, were, when I saw them about ten months since, as sharp and perfect as any which can be formed by the chisel of the mason.

I could mention a great number of buildings, some of them much larger, and more richly decorated, on which the same material has been used successfully. But I have selected this because it was the first of any magnitude on which I ventured to employ it; and is, therefore, the oldest work of my own to which I can refer. It is true, that a period of seventeen years (although much longer than some of the building stones which have been used in this country would endure under the same influences) offers but a narrow foundation whereon to build a hypothesis as to the permanent durability of any kind of material. But we all know that mortar, such as that which I have mentioned, will (if it escape trials to which it is subjected for the first few years, before the induration produced by the absorption of carbonic acid has made much progress) continue to increase in hardness, for a period of which the limits have never yet been ascertained. I know of one case, where it was used as an external casing about seventy years ago, and has now become so hard and compact as to render it almost impossible to doubt its continued durability. I remember, too, that about a year and a-half ago, in clearing a site for some new buildings, I had to remove a balustrade which had been put up about fifty years before: the capping of this balustrade, which had been executed in Bath stone, was in a most deplorable and dilapidated condition; but the balusters (formed of grey tone lime, and rather fine, but very sharp siliceous sand) were, in all respects, quite sound and perfect, exhibiting not the smallest approach to decay or disintegration: indeed, nothing but the fact of their being hollow, which was disclosed on their removal, would have convinced the workmen that they had not been carved out of some hard and compact stone.

JAMES THOMAS KNOWLES.

#### VENTILATION.

SHERINGHAM'S VENTILATOR.

IN the Report on the state of the work-houses, made recently by Dr. Farré and others, they advise the introduction of chimney ventilators (Arnott's valves) in all wards; and in those without fires, and occupied merely as dormitories, they recommend, in addition, that a gaslight should be fixed over the fireplace, with a short ventilating tube entering the chimney immediately above the valve, the fireplace being closed up below, an arrangement by which sufficient heat is introduced into the chimney to cause the valve to act efficiently in carrying out the foul air of the apartment together with the products of combustion: the tube, however, must be sufficiently short to prevent the air in it from becoming too much cooled before it reaches the chimney. As a general rule, they advise that all improvements should, as far as possible, have for their basis the substitution of active for passive ventilation, which latter has so often, after many expensive trials, proved totally inefficient.

They say justly, no system can be perfect which is not based upon an exact measure of the amount of fresh air required in every such

building, according to the number of inmates which it is estimated to contain. These, on the lowest calculation, should never, in their opinion, exceed the proportion of one individual to every 500 feet of cubic space.

An account of a system of ventilation adopted by Messrs. Rowan in a flax spinning-mill at Milewater, Belfast, has been communicated to us. It mainly depends on the rows of hollow columns, which support the floors of the building. A sufficient opening is made near the upper part of the column, to admit a ventilator, which is placed in a position to receive a portion of the fresh air constantly supplied by the outer door of the building. The columns are placed directly one above the other (as is the case in other mills), so as to form a complete funnel, carrying off all foul evaporations at the top of the mill, while the columns are so constructed that, on the upper extremity of each, a trumpet-shaped conveyancer attached completes the apparatus. In addition to the above, ventilators are placed at the top of each window, inside.

Amongst the most recent arrangements for admitting air into living and sleeping rooms, without producing a draught (a very important point), is Mr. Sheringham's ventilator, which is very simple and cheap, and can be introduced over windows or doors. Our advertising columns show its form. By the position of the flap in front of the opening, the incoming current of fresh air is directed along the ceiling, by which means it is considered the air becomes sufficiently warmed and dispersed, to prevent the annoyance of draughts which are always felt from an open window, or where cold air is admitted at any lower level. The tendency of the flap is always to remain open, but it may be adjusted to any required angle, or closed entirely by a single cord fastened in the usual manner, or having a small weight attached. For facility in fixing, the box of the ventilator is made 9 inches by 3 inches, and 13½ inches by 6 inches, so that the removal of one brick gives the requisite opening in the external wall to receive the smaller size, whilst an aperture, one-and-a-half brick in width, and two bricks high, will be proper for the larger. The upper part of the openings should be from 4 to 5 inches below the ceiling. The ventilator is then fixed from within, without defacing the wall or plaster.

Messrs. Blackwood have recently published a small volume on "Ventilation, applied to Public and Domestic Structures," by Mr. R. S. Burn,\* which gives a *résumé* of the subject, and contains much useful matter. The writer properly insists on the fact, "of which the evidence of all experience goes to prove the truth,—that no foul air can by any possibility be extracted from the interior of any building, however well arranged the means to insure its exit may be, unless an ample supply of other air be admitted."

In ventilating hospitals, particular care should be taken to provide a large supply of fresh air. "From the various fetid exhalations to be met with in such places, the quantity supplied should exceed that allowed for churches. We consider that 6 or 8 cubic feet per minute, for each individual, would not be too large a proportion. The ventilating tubes should be distributed in greater number than in churches, and they should be made all of the same height. In some cases, where there are stories ranged one above another, the foul air ventucts cannot be passed through the roof, as is done in churches. Apertures can, however, be made in the cornice, leading to air channels, all of which may be led into one large ventuct situated in the roof of the building, or leading directly (by tubes inserted in the walls) to the eaves below the outside cornice. In leading the air thus away, the great desideratum is to keep it collected as much as possible—not to allow it to spread into crevices or empty spaces. Fresh air should be let into ventucts formed beneath the floor—the apertures for these made in the outside walls, beneath the windows. As birds are often found to build their nests in these holes, bars should be fixed across the openings, or plates of zinc with very large holes, say inch or inch-

and-half. The gratings made in the flooring should be in the space between the rows of beds, and diffused, in its entrance to the room, as much as possible, by finely perforated zinc, or sheets of horse-hair cloth. It is of great importance to have means provided for heating the air admitted to hospitals."

Unless there be the means of warming the air so admitted, inconvenience is sometimes felt, and the openings are unceremoniously stopped up. We are disposed to think the balance of advantages would be found on the side of Sheringham's ventilators, for such a purpose.

For withdrawing the products of lamps in shops, the author says:—"If there is no air flue to which the products can be led, the tube from all the lights may be led along the ceiling to an aperture in the outer wall, at the front or back of the shop: if in the front, the aperture should be covered with an ornamented grating; if at the back, a cowl or cover may be used with decided advantage."

Our experience is against the expectation of a good result from this arrangement: no cowl or cover will prevent a down draught. If the tube be taken into a chimney, it will usually answer the purpose.

And touching draughts, we must dissent from what the author says on this subject at page 83, though at the risk of seeming to find fault with a book we would rather praise. He says,—"There is much nonsense promulgated about the danger of draughts. We have many a long summer day sat in a draught, so thorough and strong that our papers had to be retained on the table by books or weights, or they would have been blown away; and throughout the whole of the cold months of this confessedly severe winter, we have sat for hours writing, in a draught sufficient to cause a very considerable deflection of the flame of the candle we used in the evenings; and we will venture to say that no one has enjoyed so singular an immunity from colds as ourselves."

Our author may himself have such a heat-making apparatus as may be able to stand any amount of abstraction, but this is not the case with all, and we strenuously advise our readers most carefully to avoid draughts: young and delicate females are often waited by them into the grave:—

"If you get the wind through a hole,  
Make your will, and mind your soul."

#### CHURCH OF ST. BARNABAS, PIMLICO.

SOME time ago we gave an account of St. Barnabas's College, Queen-street, Pimlico, in the district of St. Paul's, Knightsbridge, and a view of the church, schools, and residential houses composing it. On Tuesday, the 11th inst. (St. Barnabas's day), the church was consecrated. It is Early Pointed in style, and has been fitted up and decorated regardless of money, as may be supposed when we say that the church, which will seat perhaps 450 persons, has cost at least 15,000*l*. The funds have been provided by the voluntary contributions of the inhabitants of St. Paul's parish, and especially the congregation attending Divine service in the church.

The church consists of a nave, with north and south aisles; a tower at the west end of the north aisle; a south porch; a chancel, with aisles; sacristy and choir vestry, all attached, connecting the church to the other portions of the college. There is a crypt under the eastern portion. The dimensions of the interior are,—length, 97 feet, including a chancel 30 feet deep; width of nave and aisles, 51 feet; and the height of the nave 50 feet. The height of the tower and spire is 170 feet. There is a peal of 10 bells, the private and personal gifts of various members of the congregation. The windows throughout the church, all of stained glass, are also the gifts of private individuals. The altar, the font, the holy vessels, the illuminated office-book for the service of the altar, the vestments, the eagle of brass, together with several other costly ornaments, are the gift of private individuals. The *corona lucis* in the chancel,—one of the handsomest yet made (it cost about 90*l*.)—was the gift of Mr. A. B. Hope. The warming apparatus was the gift of Sir J. Swinburne.

\* "Practical Ventilation, as applied to Public, Domestic, and Agricultural Structures, with remarks on Heating, Construction of Fire-places, &c." Blackwood and Sons, Edinburgh and London, 1859.



## DESIGN FOR A COUNTRY CHURCH.



The internal fittings are entirely of oak, executed by Messrs. Jordan and Co. The stone carving, the font, altar, and several other works, are by White. The gates to the rood, the corona, credence table,\* and the plate, are by Hardman; the smith's work, lights, &c., generally, by Potter. All the windows are filled with stained glass, by Wailes: the nave roof (of oak) is decorated with colour, and the whole of the chancel very elaborately painted and gilt, by Bulmer. The font, steps to the altar, and shafts in windows, pulpit, &c., are of purbeck marble. There is a figure of the Saviour painted over the chancel, a lofty cross surmounts the rood screen, a piscina is provided on the south side of chancel,† and in the churchyard, on the north side, there is a lofty stone cross on steps.‡

The organ is placed in the south aisle of chancel, and is somewhat cramped in appearance. It was built by Messrs. Flight and Son.

The whole has been carried out under the direction of Messrs. Cundy, architects: Messrs. Higgs were the contractors.

\* A slab of marble on wrought brass supports.

† The sedilia (3) are copied from those in Preston Church, near Brighton.

‡ Of the grave theological questions involved in these arrangements it is not our part to speak.

## DESIGNS FOR COUNTRY CHURCHES.

UNDER the title of "Designs for Country Churches,"\* Mr. Truefitt has just now published a folio volume, containing twenty plates in etched lithography, which show mastery over the pencil and skill in composition. As he says in the preface, they do not pretend to be elaborate studies, being for the most part designed in perspective on the stones from which they are printed; "neither are they put forward as models for indiscriminate imitation, being generally conceived with reference to specific though imaginary varieties of site: they merely profess to be attempts to think in 'Gothic,' exclusive of actual authority." They have much of the right feeling, and, as suggestions, will be found very useful. We have engraved one, *fac simile*, which shows a small church supposed to be erected on a confined piece of ground, with a stream running in front of it, whereof advantage is taken to give picturesque individuality to the design.

The designs are all of the Decorated period, and should serve to advance the author in his profession.

\* London, Masters; Manchester, Simms and Denham, 1850.

## THE FIRE-ANNIHILATOR TESTED AT WOOLWICH.

MORE than a year ago you very properly asked why the patentees of the fire-annihilator continued to astonish and amuse select portions of the public with exhibitions of its power, without applying it to the useful purpose of extinguishing real conflagrations. Mr. Phillips, the inventor, then stated, in reply, various obstacles and difficulties which you did not consider sufficiently clear or satisfactory. Time has rolled on, and after most of her Majesty's ministers had seen the repeated exhibitions and expressed their astonishment at the effects of the machine, the Master-General of the Ordnance gave his sanction to a decisive trial, to take place at Woolwich. A house was built on purpose, on the Plumstead Marsh, near the artillery-practice butt; its dimensions were 25 feet by 21 inside, with three floors, severally ten, nine, and eight feet high; joists and floors rather strong, windows glazed, but no internal doors. It contained a tolerable quantity of old furniture,—tables and desk, chairs, bedsteads, bedding, and curtains, and in the lower floor a lot of loose boards and shavings. Several officers of distinction and a few ladies and other invited persons were present within the railed enclosure, besides a guard and two or three



hundred artillerymen, and strangers were allowed beyond the rail. The Marquis of Anglesea having arrived, and inquired as to the arrangements, Mr. Phillips, the inventor, and his men, eight or nine in number, commenced operations. About five minutes after the light was set to the shavings, the lower front room was a mass of flame, and the glass giving way, it burst through the window: a medium-sized annihilator was then planted in front, and, from the increased quantity of smoke, it appeared to have some effect, and the flames burst out at the back. A second medium annihilator, ready steaming, was taken to that quarter; but either that the heat drove the men back, or that the steam would not rush against the wind, it was drawn off and brought to the front: its own steam was by this time half expended, and that of the first machine was nearly exhausted: the flames rushed furiously to the upper floors. Thereupon, a large horse annihilator was tapped, and with great difficulty moved across the soft uneven ground towards the burning house. Instead of calling for help to push up the steaming giant, the men attempted in vain to fix on a hose: it would not fit, and the forlorn hope, with its mouth turned obliquely to the leeward corner of the house, was left to waste its breath on the outside of the south brick wall, not one-tenth of the steam having entered the building. Thus was the fire left to burn on, and in about an hour, each floor, joist by joist, had fallen to the ground, and the whole was open to the sky.

No doubt, the mismanagement of this great trial was such as to leave the chief question uncertain; whether, with a body of flame equal to that created on this occasion, the fire-annihilator can be made efficient for its extinction. That it has great power in checking an incipient outbreak is sufficiently established; but in a case where the space occupied by the flame is very extended, and the inrush of air is wide and strong, it may be different. It is very sad to see an object of such interest to the public committed to persons who, year after year, mar every opportunity of deciding the question.

F.

#### IMPROVEMENT OF HOUSES FOR THE POOR.

ALTHOUGH it is now ascertained that dwellings for the industrious classes can be provided at a remunerative outlay, yet it cannot be hoped that new buildings for this purpose will be erected to any considerable extent, or at most, not in sufficient number to accommodate any great proportion of these classes: it seems, therefore, well worth consideration whether old lodging-houses might not be much improved, and become nearly on a par with even the best model lodging-houses. In utilising old houses, the farther advantages would be gained, too, of turning to good account the capital sunk for their construction, and of doing away with the retreats they now afford for filth, disease, and crime.

Supposing the new dwellings for the industrious classes to be taken as models, and the old houses to be operated upon to be a number of contiguous houses, the property of one landlord, the whole block might be converted into a single establishment, similar to a model lodging-house. In effecting such an improvement, the first alteration that presents itself is the doing away with all internal staircases; and, instead, to give access to the several lodgings by means of one external staircase, communicating with an external gallery along the front of each floor, so that entrance to the several apartments would be from these galleries. On this plan the place of existing staircases would be converted into rooms: a window of each front room would be made an entrance door. Where there are front and back rooms, the back one would be entered from that in front. Where more than two rooms were required for the same family, an additional one might be afforded where the old staircase had been. If, on the contrary, single rooms only were wanted, galleries similar to those in front might be constructed at the backs of houses, to give access to back rooms. It may be objected to this arrangement, that the stairs would be often wet and muddy; but, on the contrary, they would more easily be kept clean than internal stairs, when

common to many families, and much sweeter, if exposed to the external air, than when shut up in the interior of a building; besides which, as by the projected alterations lodgers would be provided with water in each apartment, they would have less frequent occasion than at present to go up and down the stairs.

The advantages of thus insulating, as it were, each separate dwelling, are considerable. By means of it privacy is as well secured as though the entrance to each habitation were direct from the street. In point of salubrity, this mode does away danger of contagion, often so fatally experienced where access to different dwellings is from one and the same internal staircase, and it removes the source of many a squabble amongst lodgers and their children, so often originating in misuse of the stairs.

In remodelling old houses, back yards, those sources of stench and filth, should be done away, the walls that divide them be taken down, dust heaps and all petty erections entirely destroyed: this done, a convenient site would be obtained for dining and coffee-rooms, communicating with existing rooms on the parlour floor. The new building needing to be only one story high, might be lighted by a skylight, or rather lantern windows. The existing parlours might some of them become reading or work rooms, and where required as a library, be suitably fitted up with book shelves. The basement rooms would suit for kitchen, bath, laundry, and stores, as also for apparatus for lighting, warming, and ventilating the whole establishment; or, if not sufficient for these purposes, a kitchen might be made under the coffee-room. Water would of course be laid on to each apartment, and means provided also for conveying soiled water away. Dust shafts and closets would be conveniently situated at the ends of each gallery. The closets at one end for men, at the other for women,—for small dwellings a more wholesome arrangement, all things considered, than where such conveniences are provided within the apartments themselves.

The dirty state of most old houses might seem an insuperable objection to this project, particularly as regards insects. Insects, however, may be effectually got rid of by the simple application of a wash of sulphate of copper; old houses greatly infected by bugs have been made habitable by means of such a wash. After pulling down worn paper hangings, old wainscoting and skirtings, the sulphate of copper should be applied in a strong solution to walls, ceilings, and floors, so as to soak their entire surfaces, and enter into crevices. Skirting boards, after having been so treated, might be replaced.

It is evident that a project of this nature would, in each case, need modification as to details, so as to suit them to particulars of each block of buildings to be improved; but the general idea once started, may lead to good contrivances, for converting even the worst of the present old lodging-houses into wholesome and creditable abodes: indeed, it seems no inconsiderable motive for the adoption of such a plan, that thereby existing dens of disease and immorality would become sane habitations, inducing self-respect and worthiness, instead of leading to habits of dirt and crime.

M. B.

#### IMPROVEMENT OF PALL MALL AND THE PARKS.

##### THE MARBLE ARCH.

So long has this monument of official indecision stood an eyesore and obstruction to the palace, that it has been the theme of general commentary; and as it fairly occupies the province of *THE BUILDER*, one more allusion to its allocation may not be out of place, even although the new site has been predetermined,—as a looker-on at the roulette-table cannot forbear to speculate on the possible turn-up of the ball, despite the acknowledged fact that the rigger will decide the colour against the heaviest stakes.

It was before urged that, to complete Buckingham Palace, the first postulate is a grand approach, or causeway, and the conversion of the present unsightly and useless arena, or mall, of forty acres, into a shrubbed and verdant English garden, reserving a causeway for

royal use through *one only* of the five timber-lined avenues which at present occupy that noble and stately extent of gravelled road.

As the Mall, which was used for a public promenade in the time of the Charleses, has long ceased to be so enjoyed by the Londoners, and as it faces full the palace, no other mode of conversion could meet the approval of any landscape gardener.

But there is a stronger reason for embellishing this wide-spreading russet-waste of gravel, in the far more utilitarian approach which might lead to the courts of royalty, through Pall Mall, in a direct line from St. Martin's Church, and which would strike out about halfway between the palace and the triumphal arch, forming a route nearly direct to Hyde-park, *without a hill*.

Such an arrangement would imply the incorporation of the two parks, the abatement of the iron railings, and their transfer to the proposed new esplanade, leaving a suitable width for foot passengers; and at any given point between Stafford House and Constitution-hill, to place the marble arch in such a position as should be visible from Pall Mall, and unobstructive of the view from one or the other of the aforesaid houses, or the palace.

The founding of a triumphal arch in juxtaposition with any other building is a solecism. Those of Titus and Severus were placed in the Campus Martius at Rome, and were then distant from other objects of conflicting grandeur. The Parisians have their Champs de Mars. It is needless to point out the isolation of their magnificent Arc de l'Etoile, or the stately simplicity and unity in design of their statues and fountains. Here we have no Boulevard, no grand avenue; and although in street improvements (as Oxford-street) the municipal authorities are amending their ways, as yet the Woods and Forests are slumbering under the narrowed shadows of antiquity.

If a graceful and commodious thoroughfare can be formed at a small cost, equally useful to the public and royalty, but, above all, essential to the perfect ornamentation of the parks and the palace, should the purchase of only ten houses be an insuperable barrier? There are but two which fall direct in the proposed opening, and those in one stack between Stafford and Ellesmere Houses,—the latter being a most creditable specimen of domestic architecture: the other eight houses are on the north side of Cleveland-row (including the corner house of St. James's-street), and are essential to the widening of a grand place opposite St. James's Palace, as well as to an uninterrupted vista from the National Gallery.

In such an avenue the best position for the arch would perhaps be intermediate, *in the line* between Stafford House and Constitution-hill; and, from the arch, one route might diverge towards the palace, the other towards the triumphal arch; or a largo, conducting either way, would serve without macadamizing acres of verdure.

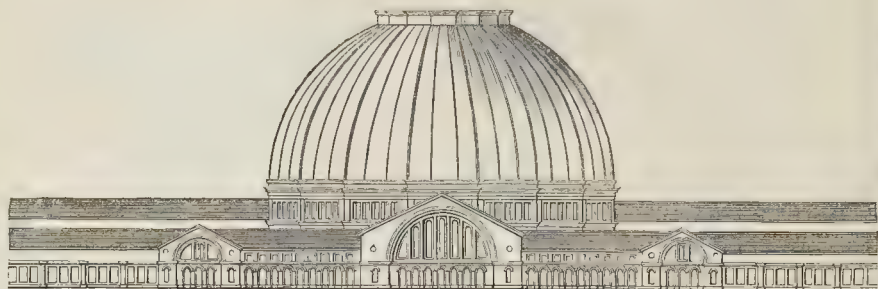
Without alluding to the express merits of the marble design, or to the origin and intent of triumphal arches, which, in latter days, if they perpetuate anything, it is only the triumph or the disgrace of the structure itself and the artificer thereof, I would again press on the authorities the occasion which is now open to them for a great metropolitan, and, therefore, national improvement,—an improvement which, if it were only for the use of private carriages, would greatly solace the public with an intra-urban promenade, disencumber the *stunning* and eternal traffic of Piccadilly, give dignity to the most noble range of London (Pall-mall), and satisfaction to the peripatetics and rising generation who now in crowds, and not ungraciously, enjoy the floral *enceinte* of the *Morpeth* (let me so call them) Gardens in St. James-park.

From the numerous allusions in the press to this subject, the feeling of the public is manifest that they expect the *marbles*, as they cannot have the *money*, back again; and an improving taste for the arts renders it imperative on officials that no freak of Gothicism shall reconstruct the costly memorial on an untoward site. A nation may pass under the yoke of its own erection and choice with compacency, while the onerous and wayward imposition of an arch job might superinduce heaviness or bitterness.

QUONDAM.



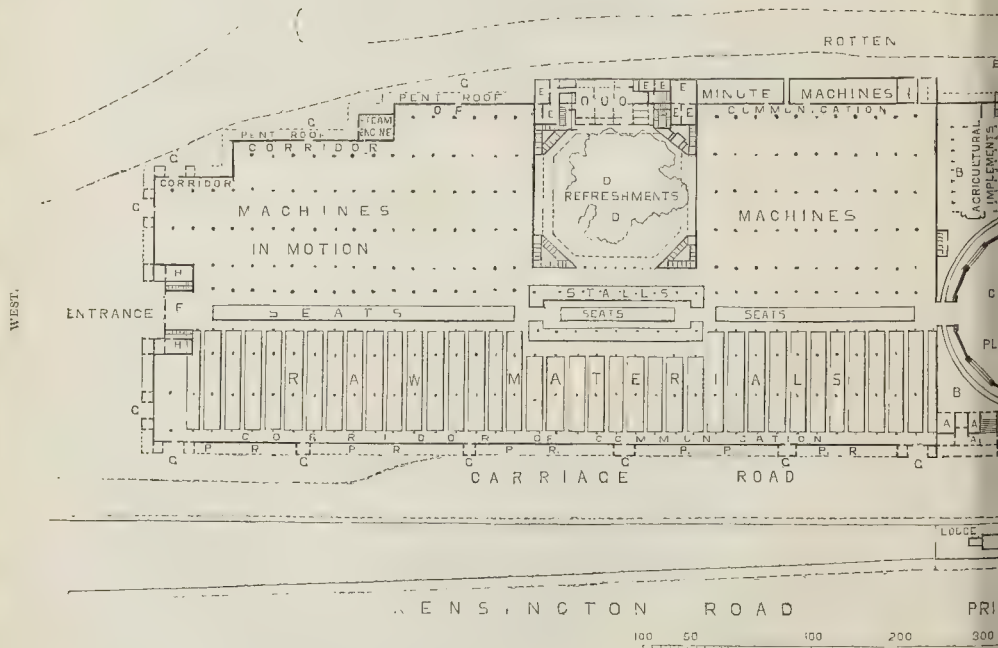
## PROPOSED BUILDING FOR



ELEVATION OF CENTRAL PART OF SOUTH FRONT.



ELEVATION



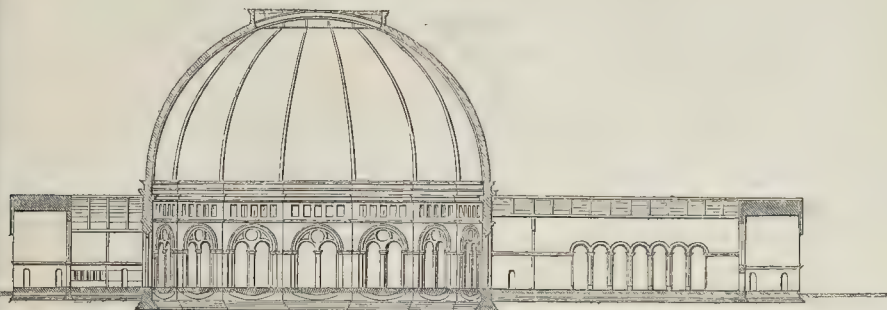
REFERENCES.—AAA. Executive Offices.

BDD. Gardens.

CCC. Exhibitors' Retiring Rooms.



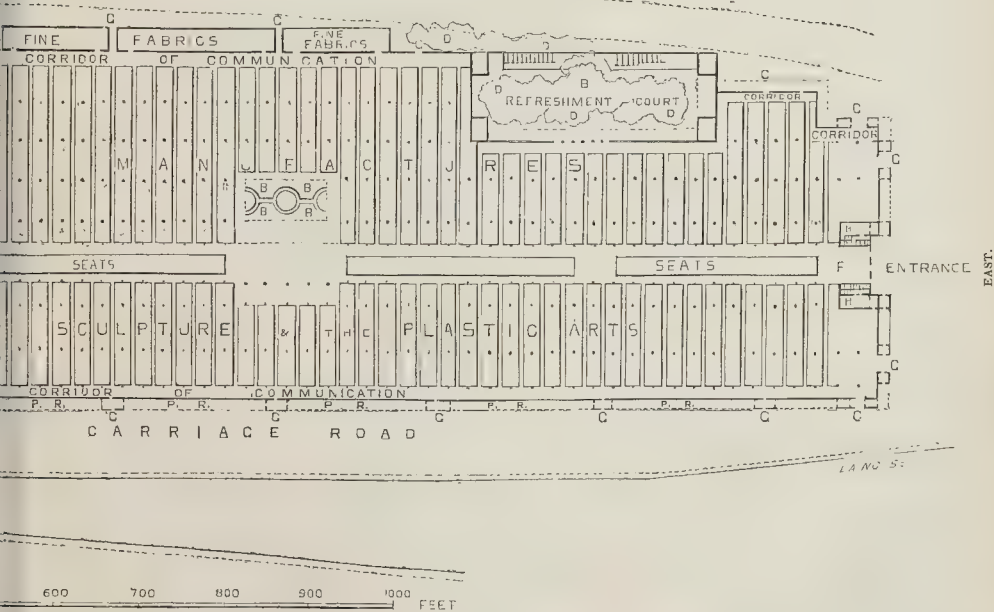
INDUSTRIAL EXHIBITION.\*



SECTION THROUGH CENTRAL HALL ON THE LINE A B.



FRONTS.



1. Offices for Refreshment Department.

FFF. Halls.

GGG. Doors of Exit.

HHH. Accountants.

\* See page 277 in our present number.



## RAILWAY JOTTINGS.

THE floating of another of the Britannia tubes, the first for the down line from London to Holyhead, was successfully accomplished on Monday morning last, during a rise of 20 feet in the tide, when the tube was placed in the recesses of the tower on the Anglesea side. The hydraulic apparatus is placed, and the raising of the tube will be at once proceeded with when the stonework at the side is built in. The fourth tube which is to complete the bridge, will be floated on 20th July, and the whole will be complete, it is believed, by October.—An official inquiry has taken place respecting the height of the intended tubular bridge at Chepstow, and its probable interference with the navigation and wharf property. The demands for one set of premises are said to be as high as 12,000*l.*—The works at New Holland will be soon completed: the first tube, for passengers ascending from the pontoon to the platform, was lowered, and completed on Monday week. The weight is upwards of 80 tons: it is 140 feet in length, and has been executed by Messrs. E. B. Wilson and Co., of Leeds, under superintendence of Mr. W. Cammell. The other tube, for cattle and carriages, will be ready by the middle of the month.—The great viaduct over the Boyne on the Belfast Junction line is to be commenced shortly, according to the *Newry Examiner*, which states that the Chancellor of the Exchequer has granted 10,000*l.* to complete the line.—The traffic of the London and North-Western steadily increases. The receipts for week ending 26th inst. were 3,075*l.* in excess of those for the corresponding period of last year. The receipts since the commencement of the year exceed by 56,840*l.* those of the corresponding period of 1849—viz., by 2,700*l.* per week, or at the rate of 140,000*l.* per annum.—The central railway station at Newcastle is in an advanced state of progress towards opening on 18th inst. Six hundred men are almost constantly at work on it. The *Newcastle Chronicle*, however, referring to a criticism in the *Athenaeum* on its designed architecture, as "a mere flight of architectural fancy, which it were hopeless to think of realizing," says, "We regret to learn that the hope expressed by the writer, and long cherished by the inhabitants of Newcastle, that this grand conception should be carried out in its integrity, is not to be realized. The building is just now at the critical point where the original plan must be carried out or for ever abandoned; and the Directors of the Railway Company, yielding to the pressure of economy, have determined that the covered arcades, the most imposing feature of the plan, shall be given up, and their place supplied by a heavy wall necessary to support the roof, but altering the aspect of the building completely. It seems that about 4,000*l.* will be the extent of the saving (the portico being indispensable). £2,000 have been already saved by the ingenuity of the architect in the construction of the roof; and for the other 2,000*l.* we are to have a maimed and curtailed plan, instead of one which would have made the central station at Newcastle the finest public building in Great Britain."—A meeting of the workmen employed by the London and South-Western Company took place on Tuesday night, at Nine Elms, with a view to establish a library and reading-room. This movement has originated entirely among the men themselves, who state that in that crowded and neglected part of London there are no places of harmless recreation or intellectual improvement open to them when their work is over, and, consequently, they have no refuge but the public-house. The friendly society for mutual relief attached to this establishment, which numbers about 900 members, is now prosperous, and an evening school in connection with it has lately been opened.—It has been ruled in the Court of Exchequer, that railway companies are not liable on contracts unless under their corporate seal.—Lord Langdale has decided in judgment on a case before him, that it is illegal for a company to complete part of their railway only, unless by special permission of Parliament. "The public benefit to be derived from the completion of the entire works," according to his lordship's judgment, "is regarded as a compensation for the interference with private rights. It

was unfortunate that after companies had obtained their powers, they frequently got the notion that these powers were given for the benefit of the shareholders only, and that they had a right to use them in their characters of partners without regard to the public benefit."

## A NOTE FROM CORK.

As I have been a silent correspondent for some time, I am going to redeem my character by letting you know somewhat of our progress in the beautiful city. I often wonder why it is so called, and sometimes fancy it a cruel joke of the perpetrator who first gave Cork so flattering but deceitful a patronymic; for, if public edifices, few and in bad taste, mean-looking private dwellings, dirty and irregular streets, swarming lanes, and filthy alleys, are lineaments of beauty in a city, then is the appellation truly deserved; if otherwise, Cork must rank amongst those cities fifty years in the rear of the times. We have, unfortunately, a corporation, and other public boards, who have the happy knack of spending an immense income, and keeping the citizens heavily taxed, without showing from year's end to year's end a single substantial improvement,—frittering away large sums of money in a thousand trifles, tending generally to the benefit of some individual, while the interests of the citizens at large are uncared for. A short time since they took a mania for building markets, and in a few years they built markets in every outskirt of Cork. And such markets! People wondered what they were for: people began to inquire was the whole city going to be turned into markets. At last it was discovered that the committee numbered amongst its members a brick and lime burner, and a timber and slate merchant, and the wonder ceased.

I went to look at these markets a short time ago: there was scarcely an inch of one of them but was overgrown with grass. Another, only three years built, was occupied as a depot for old building materials. Another, about an acre in extent, contained a donkey, a butt of potatoes, and a churn of sour milk for sale; and all this while the mayor has not a decent office or reception-room, the citizens not a single assembly-room or edifice for any municipal purpose; while the streets are badly paved, uncleansed, unsewered; while the river is allowed to inundate half the city half-a-dozen times a-year, for want of removing a weir and an obstructing old bridge.

I must, however, turn from these public delinquencies to notice of the efforts of private enterprise. The Cork, Blackrock, and Passage Railway was opened to-day for traffic: the directors have adopted a fair and moderate scale of charges. The Cork terminus is nearly complete. It is a plain Italian building, with a large crowning cornice, and very flat pitched roof. I am sorry to say the materials are brick, coated with Portland cement. The architect is Mr. Hargrave; the builder, Mr. Moore. One of the lightest iron roofs I have ever seen spans the passenger-sheds.

A new front has been erected to the butter market, consisting of a lofty Doric portal and screen wall: the columns, cornices, &c., are formed in brick and flags, and coated with Portland cement! The most interesting feature of the improvement is a new roof over part of the market, supported by laminated trusses of bent plank, in five thicknesses, each plank 5 feet wide and 1½ inch thick; span of roof 30 feet from plate to plate; trusses 6 feet from centre to centre.

A new Dominican friary is in course of erection. It is Italian with a campanile 100 feet high, of good proportions. A Flemish-looking gable takes from the general effect produced by the rest of the façade. The materials are the red sand stone, so much used in Cork, with limestone dressings. The architect is Mr. W. Atkins, of Corks. B.

MR. WYATT, OF ROME, SCULPTOR.—The sudden death of Mr. Wyatt, who has resided for the last twenty years at Rome, where his works are well known and appreciated, has, we regret to say, been recently announced. The cause of death is said to have been apoplexy.

## SIGHTS AND SCENERY.

*Lord Londesborough's Morning Meeting.*—The party invited to Lord Londesborough's on the 10th, to witness the unrolling of a mummy, procured for that purpose by Mr. J. Arden, comprised many leading persons in science and literature, as well as of rank. Mr. Birch officiated at the unrolling, and delivered a repetition of a lecture on mummies which he gave at a private view of an addition recently made to the Panorama of the Nile, curtailed and popularized. Two rather interesting plates of silver were found in the mummy, and the lady's finger-nails were replaced or preserved by silver plates: there were also some wheat and seeds found with the body. The former plates, which were engraved or stamped with figures, have been presented by Mr. Arden to Lady Londesborough, and the unrolled remains to the Royal Naval Hospital at Haslar.

*The Britton Club.*—A meeting of this club was held on the 11th, under the pleasant presidency of Mr. W. Tooke, F.R.S., when, in addition to the members (Mr. Britton, Mr. Cabitt, M.P., Mr. Cunningham, Mr. Gibbon, Mr. Grissell, Mr. Gould, Mr. C. Hill, Mr. Humfrey, Q.C., Mr. Jerdan, &c.), Lord Colborne, Mr. Cubitt (of the Engineers), Mr. Hallam (the historian), Mr. Thomas Tooke, F.R.S., and Mr. A. Tooke, were present. Some of our readers will be glad to hear that the autobiography in preparation for the subscribers to the "Britton Testimonial" is making satisfactory progress: a considerable portion of it is printed.

*The Old Masters at the British Institution.*—The collection now open at the British Institution is interesting, though not first-rate. A beautiful Cyp, a wonderful picture, by Jean Van Eycke, "The Adoration of the Magi," Holbein's Henry VIII., "Figures at a Feast," by Jan Steen, and "A Nun," by Titian, offer points for study. How finely Sir Joshua Reynolds could draw is shown by a "Portrait of Lady Farnborough," and how badly Sir Joshua is treated by restorers is shown by one of Mrs. Braddyll. Our architectural friends will notice with interest a portrait of Sir Balthazar Gerbier, by Dobson.

*Her Majesty's Theatre.*—"La Tempesta."—At the close of this charming opera on the first night of its representation, every one importantly concerned in its production was called and applauded, with the exception of the scene painter—the singers, M. Halvry (the composer), M. Scribe, Mr. Balfe, Mr. Lumley, but not Mr. Marshall. They all well deserved it, and so did he. The public do not yet sufficiently recognise scene painters' merits. At Berlin, a month ago, the artist was called on, and the correspondent of the *Literary Gazette* expressed his astonishment thereat. The mounting and getting up of "The Tempest" are admirable. For the prologue the stage represents the deck of the vessel (the perspective is too steep as viewed from the pit). The grouping of the sailors and ultimate engulfment of the ship are well managed. The sea and atmosphere in the cavern scene, in the 1st act, have a beautiful freshness, and the growing up of the ship in the last scene, which is to take Prospero and his friends from the island, is admirably contrived and painted.

## CHURCH BUILDING NEWS.

An appeal to the public has been made on behalf of Willesden Church, the great dilapidation of which it is proposed to repair, and if possible to add to the church a north aisle. The Dean and Chapter of St. Paul's have agreed to restore the chancel, but nearly 800*l.* are still required. A committee has been appointed to carry out the repairs.—St. James's parish church, Bristol, narrowly escaped destruction by fire on Sunday week.—It is in contemplation shortly to erect a Roman Catholic Chapel in Carmarthen.—The *Birmingham Journal*, referring to Mr. Hardwick's drawings of the proposed alterations of St. Martin's Church, says, "the architect has kept strictly in view the style of the original structure, as indicated in the spire and older portions of the edifice. The spire is to be an exact copy of the present, the balustrade and pinnacles at the base being replaced by ornaments and accompaniments in keeping



with the body of the spire. The tower was to be entirely restored; a chancel and porch added; the present ceilings to be removed, and a clerestory substituted. The estimates amount, in round numbers, to £0,000, which it is proposed to raise by general subscription. A dissenter, while expressing his good-will to the work in *Aris's Gazette*, proposes also a town subscription of £ence among the poor, which might lead, he thinks, not only to a contribution worth having, but to greater kindness of feeling among the too-widely separated sects of the town.—The chief stone of the new church at Wednesfield-beath was laid on Tuesday week. The church is to be in the Decorated English style. It will comprise a nave and side aisles, 85 feet by 55 feet, and a chancel 6 feet by 19 feet. There will be a tower and spire at the south-west angle of the nave, of a total height of 150 feet: of nearly 700 sittings, about 450 will be free. The church will be built by subscription, aided by grants. An endowment of £2,000, has been provided by Mr. Henry Rogers, of Wolverhampton.—A new organ, by Foster and Andrews, of Hull, has been erected in Bingley Church, at a cost of upwards of £200.—The chancel of Milton Church has been undergoing extensive repair. A new open roof has been formed, after a design by Mr. Pugin, and a new east window, in the Decorated style, was presented by the Provost and Fellows of King's College, Cambridge, the patrons, the rector adding some stained glass, prepared by Mr. Bolton. The edilia and oak stalls are being restored, and a new vestry erected.—An appeal to the public has been made in the *Leicester Journal* for the restoration of the spire, &c., of Norton-by-Galley church, the damage of which by lightning has been estimated by a builder at £1,000, to the spire and £1,000, to tower and nave; and also for the repair of the sister church of Little Stretton, struck by lightning on 23rd ult. (11 days only after the former accident).—A memorial window for St. Stephen's, Sionton, has been executed by Mr. H. Gough, of Nottingham.—The foundation stone of the new church at Swindon was laid end of last week, by the wife of Mr. A. L. Goddard, M.P.—Lloyd-treet chapel, Manchester, has been repaired and beautified, at a cost of about £200.—The new church at Heathfield, Moss-side, Manchester, was consecrated last week by the Bishop of Manchester. The church was built six or seven years ago, by Mr. Heath, of Moss-side, at a cost of about £6,000; but, for want of endowment, could not be consecrated. It has recently been purchased by Mr. Robert Gardner for £2,900, and, after an expenditure of £300, for repairs, and an investment of £1,000, for endowment, has been recognised by the diocesan.—The restoration of Saint Mary's church, Scarborough, is now nearly completed. The principal works since last season are the rebuilding of the large north aisle, lowering graveyard at east end, and restoration of south porch. Large drains have also been constructed for rendering the building dry and wholesome. The pews on the floor have been erected, and the roofs stained oak. The parapet of the tower has been taken down and reset. The re-opening will take place in course of next month.

#### TREATMENT OF BUILDERS.

In reply to an advertisement in your paper, respecting the enlargement of the Independent chapel, Stockwell-green, Mr. Wilson, architect, Bath, we made an estimate. On the 28th the following tenders were sent in:—

Hill .....	£1,375
Paull .....	1,273
Gammon .....	1,260
Walker and Soaper .....	1,233
Cooper and Davis .....	1,200
Curtis .....	1,194
Smith .....	1,129
Cooper and Bottomley ..	1,095

When requested to attend in the vestry, we were asked by the architect if we had included in our estimate the painting, graining the interior and exterior of chapel, and staining the whole of the pews; we replied in the negative, stating it was not specified. He then wished to know if we would include in our amount (for, he stated, that part of the specification had been omitted, and left at his office);

but we objected, as the amount would be considerable. Mr. Smith was then asked, but he likewise refused; it was then agreed by the committee that the three lowest should deliver in a tender for lowering one of the galleries, and the above painting, graining, and staining, the next evening at eight o'clock. We again attended, when, to our astonishment, Messrs. Curtis were stated to be successful, for not a part, but the whole. We naturally inquired the cause, when we were informed Messrs. Curtis's tender was the lowest. Knowing their amount the previous evening, we stated that we could not understand it; when one of the committee replied—Oh, we allowed Messrs. Curtis to withdraw their tender of last night, and send in a fresh one this evening. This act of cruel injustice, nay worse, was allowed and sanctioned by gentlemen who had but a few minutes previously left a prayer meeting in the chapel. Would it not have been much more honest to have told us, at all events on Tuesday evening, they intended the work for Messrs. Curtis. If such a system be pursued, advertisements for tenders will cease to be attended to.

COOPER AND BOTTOMLEY.

#### Miscellaneous.

PROVINCIAL.—A plan for the proposed day-schools at St. George's, Bristol, has been furnished by Mr. H. Crisp, who estimates the cost at £400: a site has been procured.—The Cheltenham Training College is now nearly completed.—The bronze statue about to be erected at Carmarthen to the memory of General Nott is being cast, and the foundation of the pedestal is in course of construction on the site of the old cross.—A windmill for grinding clay at a brick kiln has been erected near Hereford Canal Basin, at a cost of some hundreds of pounds, by Mr. R. Pritchard, of Hereford, builder.—The nailers of Rowley Regis are returning to work on their own terms with the masters.—The site of the new workhouse at Birmingham is levelled, and the foundations are being excavated. "The guardians," says *Aris's Gazette*, "have determined to dispense with Fox's fire-proof patent, as its adoption would enhance the expenditure £1,200." The Public Works Loan Commissioners are to advance the whole cost of erection, £25,000, if needful, in sums of £500, each.—The aviary of the Liverpool Zoological Gardens was burnt to the ground on Monday night, through some of the fireworks dropping on the thatched roof.—fireworks and thatched roofs under one and the same enlightened management!—The interior of the Manchester Exchange is now in process of decoration. The broad surfaces are painted a bright stone colour, with a slight admixture of red in the moulding; while in other instances a bright red is sparingly introduced, contrasting with pale green in other portions of the ceiling. In the old portion of the building the decoration is hardly yet begun; but nine new gases have been opened in the large dome, and a window has been substituted for the door which formerly occupied this end of the building.—The Sunderland baths and washhouses are now in the hands of the builder, Mr. W. Scott.—A "visitor" to St. Neots complains that the palisading round the obelisk in the centre of the market-square has been removed, merely because "it got a little broken, and the commissioners wouldn't mend it."—Prince Albert has consented, it is said, to lay the foundation-stone of the National Gallery to be erected on the Mound, at Edinburgh, the ceremony to take place about end of July.

BATTERSEA PARK AND BRIDGE FROM CHELSEA.—The inhabitants of the south-western districts of the metropolis have resolved to complain to the Home Secretary of the delay in carrying out the Act for this improvement, and failing him to call a public meeting for an application to Parliament on the subject.

THE LATE SIR JOSEPH BANKS.—The late Sir Joseph Banks lies buried in Heston Church. There is neither inscription, nor monument, nor memorial window to mark the place of his sepulture; even his hatchment has been removed from its place. Surely as President of the Royal Society, a member of so many foreign institutions, as well as a man who had travelled so much, he should have been thought worthy of some slight mark of respect. I believe that Sir Edward Knatchbull's family inherited the bulk of his property. W.

PROJECTED WORKS.—Advertisements have been issued for tenders by 8th July, for the erection of the building for the International Exhibition, in whole, or in part; by 3rd July, for excavating, building and completing a large main trunk sewer and several miles of principal branch sewers at Leeds, including flood-gates, culverts, &c.; by 20th inst., for paving streets, courts, alleys, &c., in St. George-in-the-East parish; by 20th, for the erection of a chapel at St. Mary Cray, Kent; by 1st July, for painting, papering, and repairing stations, cottages, &c., on the London and South Coast Railway (in four contracts); by 27th inst., for the erection of a gentleman's small residence at Frankham, near Tunbridge Wells; by 26th, for the execution of the work of asphaltting brick platforms at the London station of the Great Northern Railway; by 26th, for wood paving at same; by 22nd, for the performance of artificers' work for three years at various Ordnance stations; by 25th, for repaving and repairing Catterick Church, Yorkshire; by 27th, for the supply of quantities of tubular stone-ware drain pipes with junctions, closet pans, and syphon traps, for the Taunton Board of Health; by 9th July, for the supply of about 1,000 tons of water service pipes for the Croydon Board of Health; by 1st, for the erection of a rectory-house and offices at Aston Clinton, Bucks; by 29th inst., for alterations and additions to a house at March, Isle of Ely, with new stabling and premises; by 17th, for works connected with carriageways, at Bristol; by a date not specified, for an addition to the Catholic Church of St. Joseph, Southampton; by 25th inst., for the erection of additional offices at the Derby station of the Midland Railway; by 27th, for the erection of a new wing to the County Lunatic Asylum, Gloucester; by 29th, for the erection of a new church at Ogley Hay, near Brownhills station of South Staffordshire Railway; by 1st July, for the construction of 1,900 feet of brick drain, at the Pest-house-fields, Portsea; by 27th inst., for the erection of an engine-stable, and two cast-iron tanks and coking apparatus, and for forming and metallising approaches (separate tenders) at the Newcastle station of the York and Berwick Railway; by 22nd, for lighting and repairing gas-lamps, and supplying lamp-posts, lanterns, brackets, cocks, burners, &c., and other works connected with the lighting of Kennington-lane, &c.; by 17th instant, for the erection and completion of a gas-holder, 100 feet diameter and 22 feet deep, at Rochdale; by 18th, for certain works and alterations at the police-station at Latchington; and by 18th, for the mason, joiner, bricklaying, and other works in erecting the Mechanics' Institution and Temperance Hall at Woodhouse (Leeds). The maps, &c., relating to the tenders for water-works, &c., at Copenhagen, have been received in the city.

METROPOLITAN TUNNELLING AND RIVER EMBANKMENT.—Pending a discussion at the Society of Arts last week on sewerage and water supply, a plan was submitted by Mr. W. H. Smith, comprising a terraced embankment of the Thames (*à la* Martin), beneath which should be lines of tunnelled railway communicating with the various metropolitan termini of the great trunk railway lines,—water-culverts and pipes,—and large sewer courses. Immediately under the roadway of the embankment, and above the tunnels, Mr. Smith proposed that there should be transverse arches communicating with the Thames, for commerce and traffic on the river. The esplanade would be 60 feet wide, protected by a parapet next the river, and on the other side lined with handsome houses, disposed according to the sweep of the river. With respect to the railway tunnels, descent and ascent would be by inclined plane. The supply of pure water would be taken from a place high up in the Thames above the point of tidal action, and raised by high-pressure to supply the most elevated districts. The termini of the sewer tunnels would be some 20 miles below Blackwall, in the Thames marshes, below the floating power of the tide to carry it back to the metropolis. The embankment should extend from Vauxhall to the West India Docks and Deptford—that was about 10 miles—and the estimate of the cost of construction be fixed at £300,000, per mile, or £3,000,000, altogether. The scheme was illustrated by plans, &c.



**METROPOLITAN COMMISSION OF SEWERS.**—At the last general meeting, Lord Ebrington in the chair, several works, amounting to 2,103*l.* 4*s.* 11*d.*, were ordered, and some remarks were made on a method of preserving the lives of workmen in dangerous sewers, after which a motion was read for authorising the printing of sheets from the block plan of the survey of the city of London, when Captain Dawson explained that the survey having cost only 19,000*l.* of the 24,000*l.* originally voted for it, it had been resolved to apply the remainder in liquidation of the expense of engraving the map, the cost of engraving per estimate being only 8*l.* 15*s.* a sheet, while each of at least six copies requisite would cost 20*l.* a sheet if done by manual labour. The whole block plan would comprise about 900 sheets of double elephant paper, and measure 100 feet in length by 72 in breadth. For convenience, therefore, the Court had ordered in addition a map on the reduced scale of one inch to the foot, occupying 44 sheets, and 22 feet in length by 14 in breadth. The more important of these sheets would no doubt be in the hands of the public at the end of the year. The sheets of the general map and of the block plan would be sold at 2*s.* a sheet. The sale of maps by the Government Department of the Board had always increased in proportion to the reduction in charge. The motion was then put, and the printing of the map was ordered, as also that of the index map. An allowance of 3*s.* a week for the temporary behoof of the widow of Gee, who lost his life in the Kenilworth-street sewer, was then ordered, and the Court adjourned.

**"AULD ROBIN GRAY."**—A correspondent, with reference to a note appended to our article on Wrington Church, which appeared some time since (see p. 64, *ante*), says we were in error in attributing the authorship of "Auld Robin Gray" to the Rev. W. Leevess, rector of that parish; and that, on referring to vol. ii. p. 332, of "The Lives of the Lindsays," we shall find it was written in 1771, by Lady Anne Lindsay. This latter is quite true; but what we said was, that Mr. Leevess was the composer of "Auld Robin Gray," and if our correspondent would look back to the very page of the interesting book he has quoted, he will find it set forth that the music of the beautiful ballad in question is, "as usually stated," by the Rev. Mr. Leevess, of Wrington.

**GLASS COATING FOR IRON ARTICLES.**—At the late *soirée* of the President of the Civil Engineers, were some specimens of iron manufacture, coated with glass, from the Smethwick Iron works, near Birmingham. In coating plates, roofing tiles, tubing, kettles, cauldrons, &c. &c., by this method, the article is first cleansed in an acid solution, and then covered with a glutinous preparation, over which is laid a coat of glass, ground to a fine powder. In a furnace the glass is then fused. In ornamental dinner plates foliage and designs are given in relief, executed by a kind of stenciling; one colour being put on, it is transferred to the kiln and fixed: when cold, another colour is added, again fixed, and withdrawn; and so on till the design is completed. The invention may hereafter be applied to numerous purposes in decorative building and architecture.

**THE NATIONAL GALLERY.**—In reply to Colonel Rawdon, in the Commons, Lord John Russell lately announced that the report of the Picture Committee was ready, and would be shortly laid before the House; that the Royal Academy had responded to his lordship's proposal of removal, by expressing a general desire to comply with the wishes of the Government; but that, with the information now before them relative to the state of the national pictures, further inquiry should be made as to whether Trafalgar-square offered the best site for a national gallery, and what was the best mode of preserving the national pictures. For these purposes a select committee is to be appointed, as far as possible comprising the members of the committee already formed.

**DRAYTON CHURCH.**—The following is a list of tenders for the restoration of St. Martin's church, West Drayton. Mr. C. Innes, architect.

Carter and Ellis .....	£1,683
G. Hartly .....	1,528
T. Hardy .....	1,060
J. Hollis .....	1,060
Passbridge and Son, Uxbridge ..	840

Comment is thrown away.

**TESTIMONIAL TO THE ARCHITECT OF THE LONDON COAL EXCHANGE.**—We learn from the daily papers that the coal factors and merchants of the City of London have presented to Mr. Bunning, the City architect, a valuable piece of plate, weighing 222 ounces, thus inscribed:—"Presented to J. B. Bunning, Esq., by the coal factors and merchants of the City of London, as a testimonial of their admiration of his genius and judgment in the erection of the Coal Exchange, and of his urbanity throughout the progress of a structure which is not more approved of by those for whose use and convenience it was designed than by the public at large, for its taste and elegance as a work of art. Anno Domini MDCCL." Such acknowledgments are rarer than they should be.

**GLASS.**—A return has been published relative to the export and import trade in foreign and British glass, from which it appears that in the year ending January, 1850, the following quantities of foreign glass were imported. Of window glass, white or of one colour, not exceeding one-ninth of an inch in thickness, 25,555 cwt., of which 7,671 were retained for home consumption, producing 1,208*l.* duty, at the rate of 3*s.* 6*d.* per cwt.; of all glass exceeding one-ninth of an inch in thickness, silvered or polished, 68,106 square feet, of which 61,946 were retained for home consumption, producing 1,224*l.* duty; of glass painted or otherwise ornamented, 2,701 square feet, of which 841 were retained for home consumption, producing 31*l.* duty, at 9*d.* per square foot; of white flint glass bottles, not cut, 47,896 lbs., of which 33,326 were retained for home consumption, producing 48*l.* duty  $\frac{1}{2}$ *d.* per lb.; of all other white flint glass goods, not cut or ornamented, 71,502 lbs., of which 27,805 were retained for home consumption, producing 114*l.* duty, at the rate of 1*d.* per lb.; of cut coloured or ornamented glass of all kinds, 733,717 lbs., of which 571,336 were retained for home consumption, producing 4,752*l.* duty, at the rate of 2*d.* per lb.; of other glass, not otherwise described, 188 cwt., the quantity retained for home consumption being 134 cwt., producing 22*l.*, at the rate of 3*s.* 6*d.* per cwt. The quantities of British glass exported during the same period have been as follows:—flint glass, 18,184 cwt.; window glass, 17,386 cwt.; plate glass, 50,920 square feet; common glass bottles, 233,108 cwt.; looking glasses and mirrors, to the value of 6,597*l.*

**THE ELECTRIC LIGHT.**—The electric light was lately exhibited from Sunderland South Pier Lighthouse, by Mr. Staites, with the view of adopting it as a permanent means of illuminating the lighthouse and new docks, the latter of which are to be opened on the 18th inst. It is said to be likely, should the cost not prove an obstacle, that it will be forthwith adopted. We should have believed more fully the account of the trial with which a correspondent favoured us, if he had not gravely repeated a report that a sailor lighted his pipe by means of its rays and the assistance of a burning glass!

**WATERLOO-BRIDGE COMPANY.**—The annual meeting of proprietors has just been held. The report states that the tolls received during the half-year ending February 23 amounted to 7,637*l.* 11*s.* 3*d.*—4,630*l.* 1*s.* 3*d.* from foot passengers, and 3,007*l.* 10*s.* from carriages and horses. After paying expenses, and providing for interest due, besides a dividend of 2*s.* 10*d.* in the pound to annuitants, there remained a surplus of 195*l.* 14*s.* 10*d.* An improvement had taken place since February in tolls, which amount to 147*l.* 8*s.* 1*d.* more than last year.

**BATHS AT THE SERPENTINE.**—Would it not be well to appropriate that part of the Serpentine, in Hyde-park, now existing in the form of a cascade, to a building suited for purposes of bathing? the ground being so favourable to the flow of the water over hot plates, or any other heating medium, without the great expense consequent on raising, which in almost every other spot in London would be required. This structure would only require a front and ends, and could have on the greater part of its frontage a flat, thus making at all times a promenade suited to those whose taste for such scenes lead them to the spot.

J. C.  
\*The public would look jealously on any permanent building in the park.

**PROPERTY IN GRAVEL AT BETHNAL GREEN.**—At *nisi prius* 40*l.* damages have been awarded to a proprietor of premises, let to a tenant who dug a hole in the ground, excavated gravel to an alleged value of 130*l.*, and afterwards filled it up with rubbish. The lease had no covenant, *pro* or *con*, in contemplation of such a proceeding. Notice to cease excavation had been disregarded. Improvement of the drainage was alleged in defence. The judge considered the plaintiff herself liable to the ground landlord for such injury done to the property.

**"CALF TORTURING."**—I am sincerely glad to observe that the respectable provincial capital of Derby has taken up the above distressing subject. And now that humanity is informed—and that ignorance of shocking barbarity existing can be no excuse—no doubt a useful regret against unnecessary cruelties practised on an offending animal, will do its proper work in other parts of the kingdom. No man, no Christian, can have pleasure, or feel any quiet of heart and conscience, in partaking of the flesh of a tortured animal, had it been ten times more a luxury, and were the flesh much better than it would be if killed in its natural and proper manner, as in many other countries.—*CLAVIS.*

**MR. SMITH, OF DEANSTON.**—We regret to find that this gentleman, so well known in sanitary matters, but especially noted for his improvements in the drainage of land, expired suddenly, on Monday week, at Gatrine, in Ayrshire.

**SUBTERRANEAN CHAMBERS AT TILBURY.**—A descent was made some time since into these chambers, by Mr. J. Cook, of Aveley, who says,—"The shafts are five in number, and are situated at the edge of Hanging-wood, in the parish of Chadwell, about three miles from Grays pier. I descended two of them by means of a rope and pulley fixed to the branch of a neighbouring tree,—taking the precaution to have a lighted lantern swinging a few yards beneath me. They were between 80 and 90 feet in depth, their diameter at the top 6 feet, gradually diminishing to 3 feet at the bottom. I found five chambers communicating with one shaft—three on one side and two on the other. In form they are nearly semicircular. Their dimensions are small, not exceeding 30 feet in length by 15 in width, but very lofty: they were quite dry and free from foul air. The chambers in both shafts corresponded exactly with each other in size, form, and number." A further examination of these curious excavations is about to be made.

**SHERBORNE CHURCH.**—In the course of excavations here a sculptured stone figure, supposed to be of the Virgin, has been discovered. We are told that the statue is in a sitting position, and about 4 feet high. "An Antiquary" writes us from Sherborne, complaining that the Norman porch has been taken down, and that in the rebuilding it is proposed to finish the upper part in a very questionable manner. The ancient font, he says, which is to give place to a new one, is lying broken outside, surmounted at this moment by a wheel-barrow.

**NEW HOUSES OF PARLIAMENT.**—On Monday night a debate took place in the Commons on the occasion of voting the annual instalment of means to proceed with the Houses, when Mr. Hume in his speech commented on Earl de Grey's remarks at the Institute, reported in *THE BUILDER*. The Chancellor of the Exchequer pointed out that the extras were not so heavy as had been represented; and Sir Robert Peel followed with a strong speech in defence of Mr. Barry, in which he showed that many of the alterations and much of the expense had been incurred at the instance of members who now objected, and that Earl de Grey's remarks were just. The new House of Commons had been specially made shorter than the length of the present apartment, by desire of a committee of the House. The proceedings of the Fine Arts Commission were also shown to have been in accordance with the wishes of the Commons. After another onset by Mr. Osborne, the vote was agreed to by a large majority.\*

\* To the list of names appended to our report of meeting of the Institute whereto the medal was presented to Mr. Barry, we are requested to add those of Mr. Moore and Mr. Mair, Fellows; and of Mr. Wadmore, Associate.—[The names, by the way, are amusingly coincident.]











# The Builder.

No. CCCLXXXV.

SATURDAY, JUNE 22, 1850.

**S**OME time ago we stated broadly the conclusions which the General Board of Health had arrived at in their Report on the supply of water to the metropolis, signed, "Carlisle, Ashley, Edwin Chadwick, and T. Southwood Smith." This Report contains a large mass of information, set forth in 325 closely-printed pages, relating as well to drainage as to the more prominent object of inquiry, and we propose now to turn over the leaves and condense for the advantage of our readers some of the more salient statements, without seeking to connect them. According to the returns made, the water companies supply 270,581 private houses; and as the total number of houses returned under the income-tax assessments for the metropolis is 288,037, there appear to be 17,456 houses unsupplied with water. Previous inquiries serve to show that the number is even much larger. The daily quantity of water, according to the same returns, pumped into the metropolis, is upwards of 44,000,000 gallons, or more than would form a lake equal to the area of St. James's-park 30 inches deep. It could be delivered in twenty-four hours by a brook 9 feet wide and 3 feet deep, running at the rate of a little more than 2 miles per hour: three sewers of 3 feet in diameter, having a proper fall, would suffice for its removal when soiled, a fact which of course bears materially on the question of size of sewers.

The miserable condition of the poorer classes in respect of water is shown forcibly, both as to the want of any, and the badness of the water where they have it. Mr. Chalice, a surgeon, asserts positively, with reference to the connection between bad water and the cholera, that in parts of Bermondsey, where deep spring water alone was used, and where such water was free from the effect of percolation from the drainage, persons escaped the cholera altogether.

Amongst the evils of an intermittent supply entailing the storing of water in vessels, must be placed the fact (made evident during this inquiry), that water exposed to an impure and noxious atmosphere, absorbs noxious and impure matters, and thus becomes injurious to health.

We have at various times had occasion to speak of the effect of water on lead, with the injurious results of the infusion on the system, and have pointed out that pure water had a more powerful action on lead pipes and cisterns than impure. This has been urged, it appears, by some of the witnesses, who would keep the supplies "hard," as they are. The Report says:—

"There can be no doubt of the more powerful action of soft water upon lead under given circumstances, which circumstances, however, we find, from experience on a large scale, seldom or never occur under a proper system of distribution. Some fatal accidents have been occasioned by the fall of leaves in leaden gutters and cisterns, the infusion of which appears to have caused powerful decomposition. The use of lead piping and lead cisterns has long been objected to, and the remedy would be the disuse of that metal. Iron piping is altogether better and cheaper than lead, and may now, it appears, at no great additional

expense, be protected from oxidation by an earthenware glaze. But for the obstinate prejudice of professional men and builders in favour of the most expensive materials, earthenware would have been manufactured and used for the distribution of water. It was so used by the Romans. Vitruvius recommends it as far preferable to lead; he shows that it was used for the distribution of water up to 100 feet of pressure."

"Professional men and builders" are with difficulty moved into a new course; but the motive for adherence to the old course here suggested is a wrong one: this is an error which has been long entertained and acted on by the able writer of the Report before us.

A witness from Paisley, where soft water has been introduced, says that corrosion in pipes takes place only under the intermittent supply, by the action of the atmosphere on the pipe in a damp state; and that an iron pipe constantly charged will not corrode at all, whether the water be hard or soft, and will last at least four times as long as a pipe where the air is admitted into it.

Other witnesses corroborate the fact that, with some waters, the wear of pipes by the intermittent supplies is frequently very rapid, the rationale being, that oxidation takes place whilst the pipe is empty, and that the oxide is swept away by the return of the water.

Professor Clark shows that accidents from the contamination of lead may be prevented by simple filtration. At a marine villa belonging to Lord Aberdeen, some of the servants suffered in health from lead in water derived from pipes. Sand filters were put up under his direction, and the result was satisfactory.

"I hold it in all cases (says the witness) to be dangerous to allow water to pass through any considerable length of lead pipes, or to allow water to remain for a long time even in short pipes. In the case of the marine villa before alluded to, the water came a considerable distance through lead pipes; I suppose above a quarter of a mile. The water in Aberdeen is brought from the iron mains in the streets into the houses by means of lead pipes; and in general without any disadvantage, because the supply from the pipes is constant, and the use of the stop-cock very frequent in a family."

To learn the difference of effect in cooking of hard and soft water, the Board called in M. Soyer, whose statements were very decisive. The result is to the effect, that by the use of Thames water *one-third more tea* is used in the metropolis than would be the case if the water were soft; and that in cooking generally soft water would effect great saving.

The "washing-day" is an annoyance appreciated by large masses of not merely the lower, but the middle classes,—an annoyance affecting happiness, comfort, health. The cost of this, in the aggregate, will startle those who consider it for the first time. This expense is greatly increased by the waste of soap occasioned by hard water; and to make this clear, some curious particulars are given in the Report, showing, first, the largeness of the item *washing* in a family's expenditure. In families of the middle class, the cost of washing amounts often to nearly one-twelfth or one-thirteenth of their income.

"The waste amounts to 25½ ozs. of soap in the use of each 100 gallons of water of 16 degrees of hardness, over and above that which would be required with a water of 4 degrees of hardness; or, with the price of soap at 5d. the pound, causes an extra cost of 8d. on each 100 gallons, or 6s. 8d. on each 1,000 gallons; being more than 20 times the first cost of an economic water-supply, as furnished in several towns, or as might be furnished to the metropolis, allowing 7½ per cent. for the use of the capital required."

Mr. John Bullar arrives at the conclusion that the washing bills of London are nearly one shilling a week a head, or 5,000,000l. a year.

"The washing expenses of a middle-class family, inhabiting a house rented at 120l. a-year, and rated (high) at 100l. a-year, consisting of husband and wife, three children, and three servants, may be taken at not less than 20s. a-week, or more than half the rated rental; and from all that I have been able to learn, the proportion which washing expenses bear to rent is much greater in those families whose income is large enough to free them from the necessity of studying economy in matters of ordinary domestic expenditure. It is said that the average yearly value of the houses in London assessed under the Income-Tax is 40l.; and that the average number of persons to every inhabited house in London is 7·4. At one shilling a-week a-head the washing-bills of the persons inhabiting each of these houses would be within a very small fraction of 20l. a-year."

Returns show that the quantity of soap annually consumed in the kingdom is equal to seven-and-a-half pounds for each individual, and may be put at 3s. 4d. for each individual. Professor Clark comes to the conclusion that in London alone, a hard-water district, the consumption of each person is equal to about double this, or 6s. 8d.

From 800 to 1,000 tons of soap are used in London per month.

"If the importance of what is politically called an 'interest' be measured by the aggregate amount of the expenditure involved in it, then the washerwoman's interest is larger than the chief manufacturing interest of the country—the cotton and linen manufactures,—(at least as far as the home market is concerned)—inasmuch as far more money is expended in washing clothes than in the manufacture of the fabric or of the clothes themselves."

If we burnt our smoke, got rid of the dust in the streets, and obtained soft water, an amount of startling largeness would be annually saved to the Londoners, their clothes would wear longer, and the poor would not be driven to the dirt-concealing and evil-producing garments to which they have been forced.

At the Bolton Union, softening the water from five and a half degrees of hardness (or one-third the hardness of Thames water) to two degrees of hardness reduced the expense of soap and ashes from 2l. 10s. 1d. weekly to 1l. 11s. 10d. The same clothes which were washed in the country with soft water for 5s. 3d. cost in town with water from Chelsea Water Works, 10s. 10d.

Under the third head of the inquiry,—the mode of removing water after it has been used, the arguments in favour of small pipe drains are reiterated, and evidence quoted in favour of their superiority over large drains.

The statements made by Messrs. James Walker, W. Cubitt, and I. K. Brunel, on the City sewers, are attributed to their having trusted the reports of others, who have misled them, and in opposition to the opinions expressed by these engineers as to the size and form of sewers, various experiments are quoted. In one case, 150 houses were drained perfectly through one 6-inch unglazed earthenware pipe!

"It appeared from the gaugings of the run of water on ordinary days (and exclusive of storm-water), that the drainage of 1,200 houses occupied a space not larger than would pass a 5-inch pipe, proving that the actual drainage of 1,200 houses would go through a space less, by two-thirds, than that which, on the advice of various architects, was fixed by the Metropolitan Building Act as the minimum size of a drain for a single house. If, as appears probable, the flow of soil water from



house-drains in the entire metropolis were in the same proportion, then the whole of the present soil or refuse water from the houses might be carried away in one pipe of 3 feet in diameter, and a double quantity in one 4-feet pipe."

The advantages of *back drainage* are strongly urged, and the necessity of *preventing accumulations* is properly insisted on instead of making ineffectual endeavours to withdraw from sewers the foul gases generated by such accumulations. "It is confidently predicted that when the common syphon or water-traps are relieved from the pressure of such gases as are now evolved from stagnant fluid and semi-fluid matter, they will be found effectual in arresting any odours which may arise from the reduced surface of running sewer water."

We will take this opportunity to inquire what has become of the plans sent in long ago in reply to advertisement by the Commissioners of Sewers, for the drainage of London? whether any of the competitors have been paid, not to say rewarded? and what the Commissioners are now about? The sewers of London are at this moment full of danger; the hot weather is approaching; and if we remain free from a pestilence, it will not be for want of facilities for its approach.\*

#### THE NEW ALMS-HOUSE ON DEER ISLAND, IN BOSTON HARBOUR.

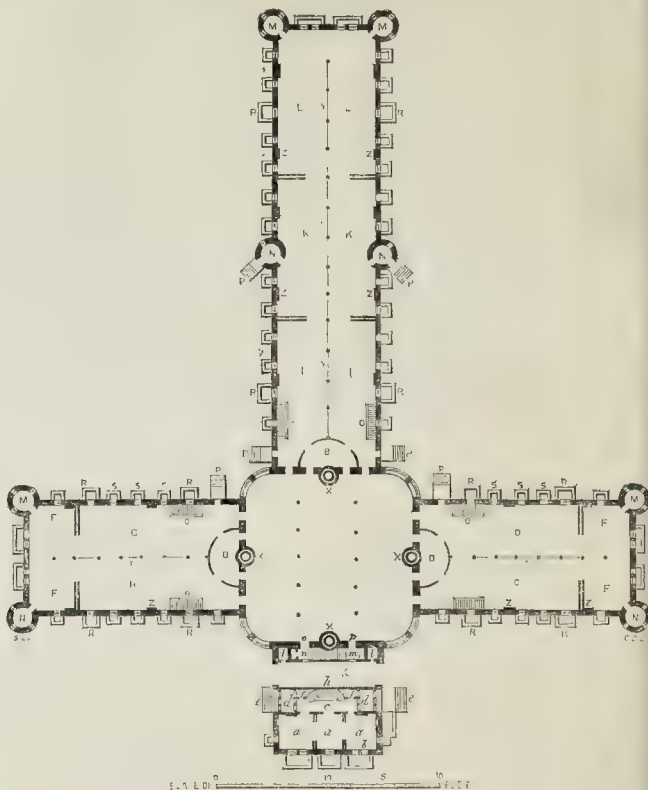
THE New Alms House erecting on Deer Island, in Boston Harbour, United States, was designed by Messrs. Louis Dwight and Gridley J. F. Bryant. This building does not represent the workhouses of America. Each county in the state of Massachusetts has its poorhouses or workhouses, the large cities or towns, theirs. But this building now erecting is the property of the city of Boston, and is intended as a place for the English, Irish, French, Germans, &c., who go there by thousands during the warm months; sick, poor, and diseased.

The size of the building is such, as to allow four feet by twelve, on the floor, and twelve feet in height, to each of twelve hundred inmates; i. e. about six hundred cubic feet of space to each person.

The form and structure is that of a "Latin Cross," having its four wings radiating at right angles from a "central building." The central building is four stories high; the lower story (on a uniform level with the cellars or work-rooms of the north, east, and west wings) contains the bathing-rooms, cleansing-rooms, furnace, and fuel-rooms; the two next stories contain the general guard-room, to be used also as a work-room; the next story is the chapel; and the upper story is the hospital. The south wing is four stories high; the lower one contains the family kitchens and entry of the superintendent's family; the second is appropriated for the family parlours of the superintendent, and a room for the use of the directors, together with the entrances and staircases, and the opening or carriage way, for receiving the paupers. The staircases communicating with the guard-room, and with the cleaning-rooms in the lower story of the central building, are also located in this story. The two remaining stories will be used for the family sleeping-rooms, superintendent's office, officers' rooms, and bathing-rooms,—together with the entries, passages, closets, and staircases. Each of the north, east, and west wings is three stories high, with basements and attics over the whole surface of each wing. The basements are for work-rooms. The remaining stories, including the attics, contain the wards, hospitals, and day-rooms for the inmates, together with the sleeping and inspection rooms for the nurses and attendants.

\* Some unsightly works are now going on in Palace Yard, near Westminster Abbey, which have already provoked discussion in the House of Commons. A steam engine is being erected there to drain the land, as we understand Lord Elmsford, while the new sewer for Westminster is being put in.—The correspondence between Mr. Barry and Mr. H. Austin relative to the sewer under the new Houses of Parliament, which we reviewed at the time, has been called for in Parliament.

#### PLAN OF GROUND FLOOR OF NEW ALMS-HOUSE, BOSTON.



#### References.—

- |   |   |
|---|---|
| A Great kitchen                             | Y Screen partition 7 feet high                      |
| B Inspectors' rooms                         | a Superintendent's family parlours                  |
| C Eating room for working and healthy men   | b Directors' room                                   |
| D Eating room for old and infirm men        | c Superintendent's entry                            |
| F Exercising or day rooms                   | d Entrances to keeper's house                       |
| G Eating room for lying-in-women            | e Closets   |
| H Eating room for healthy and working women | f Stairway  |
| I Bakery and dry store room                 | g Outside entrance to basement                      |
| K Bathing and clothes room                  | h Archway entrance                                  |
| L Ironing and drying room                   | i Coal drops  |
| M Water-closets                             | m Entrances to great kitchen and stairs to basement |
| N Stairways                                 | n Stairs to superintendent's office                 |
| O Stairways                                 | o Entrance to great kitchen                         |
| P Steps and entrances to house              | p Water-closet                                      |
| R Cellar doorway curbs                      | z Open fire-places once in 50 feet in every story   |
| S Cellar window curbs                       |   |
| X Ventilating and hot-air flues             |   |

There are eight circular towers attached to the exterior walls of the north, east, and west wings; they contain the water-closets requisite for the inmates of the building; two of them contain staircases. The water-closets are placed on the level of every story, and entered immediately from the floors thereof, and are disconnected from the main building by a column of air passing through upright openings, in the exterior walls of the towers, opposite to each other, and placed near the walls of the building.

The dimensions of the building are as follows, in round numbers:—The centre building is 75 feet square and 75 feet high, each perpendicular corner being subtended by the section of a circle. The superintendent's house, if the building faces the south, makes the south side of the centre building, except the circular corners, and is thrown out by these corners 50 feet by 50 on the ground, and 50 high; so that it stands almost as much separated from the main building as if it were entirely disconnected with it, and is still near enough for the convenience of the superin-

tendent. The north wing, intended particularly for women, is 100 feet by 50, and 50 feet high, i. e. twice as large as the superintendent's house. The south wing, intended particularly for men, is 100 feet by 50, and 50 feet high, the same dimensions as the north wing; and both these wings are separated from the superintendent's house, and thrown out from the centre building like the superintendent's house, by the semi-circular corners, for purposes of better supervision and ventilation. The east wing, intended for the accommodation of different classes, and for different purposes, in the different stories, is 200 feet by 50, and 50 feet high, i. e. twice the dimensions of the north and south wings, and four times the dimensions of the superintendent's house. The north, east, and west wings have three stories, each 12 feet high, above the basement, and beneath the attic. The attic is 9½ feet high, and the basement 8½ feet high. The south wing is four finished stories high, and the floors of these stories are uniform with those of the three other wings. The circular towers attached to the exterior walls



## INSTRUMENT FOR DRAWING THE HYPERBOLA.

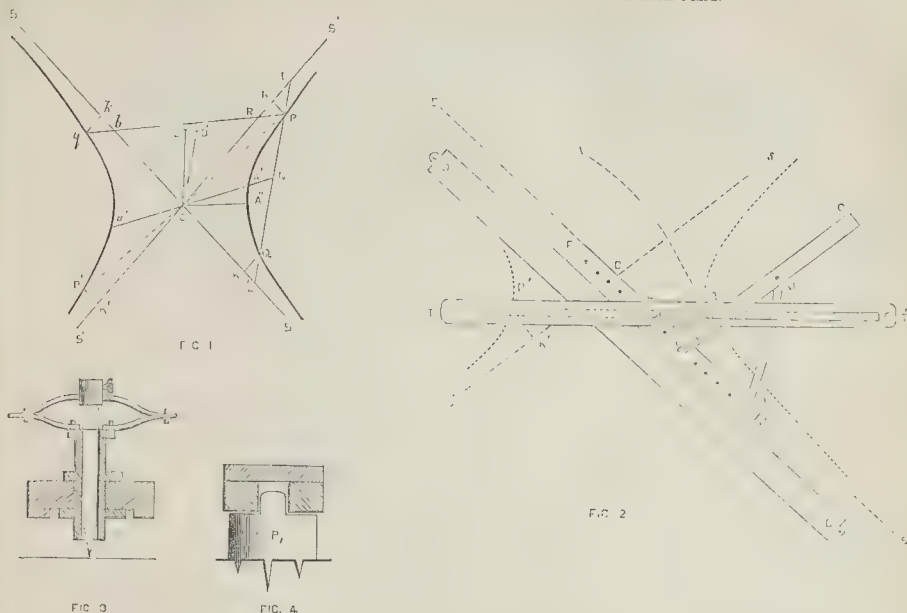


FIG. 3

FIG. 4

FIG. 2

of the north, east, and west wings, are each 65 feet high and 13 feet in diameter.

The proportions of the building are arithmetical:—the centre building is a cube of 75 feet, with the corners subtended; the superintendent's house is a cube of 50 feet; the north wing is two cubes of 50 feet each; the south wing is two cubes of 50 feet each; and the east wing four cubes of 50 feet each.

The paupers, as they arrive, are received at a central point, under the eye of the superintendent, in his office, as they approach; thoroughly cleaned, if necessary, in the basement central apartments for cleansing; and distributed, when prepared for distribution, to those parts of the building assigned to the classes to which they belong.

There is a chapel, with a gallery, occupying 75 by 75 feet, on the third floor of the centre building, two stories in height—the floors of the chapel and gallery being on a level with the third story and the attic floors,—which is well lighted, in a central position, of convenient access from all parts of the establishment, and which is commodious enough for those who are able to attend religious worship out of even a larger population than 1200.

Large folding-doors, or traversing-doors, are an original feature of this plan, and answer, by being opened wide, and by turning, in different directions, important ends, in making rooms for particular purposes, when they are wanted; and when such rooms are not wanted, in being opened wide, or turned back, so as to leave the supervision unobstructed, and change the circulation of the air throughout the establishment.

It is not absolutely a fire-proof building, but the roof is slated; the floors are double, and laid with mortar between them; the ceilings under the floors, and over the rooms, consist of joists, and the bottom of the lower side of the double floors; the walls are brick, built hollow, and without lath and plaster on the inside, or coverings of any kind on the outside; the windows are wooden sashes, but they are set in a thick double brick wall, and may each and every one of them burn without burning another. All the wings are separated from the centre building by a thick brick wall, covered and secured in all its openings, with iron doors and shutters, and rising above the roof of the wing, so as to make a barricade against fire, behind which the inmates of a wing on fire may retreat, and firemen may be protected.

The building is all under contract, and the whole was to be finished on the first day of July, 1850, at an expense not exceeding 150,000 dollars.

Annexed we give plan of the ground floor. A view of the building will be found at page 294.

## DESCRIPTION OF AN INSTRUMENT FOR DRAWING THE HYPERBOLA BY CONTINUED MOTION.

THE diagram fig. 1 is intended to explain the property of the hyperbola, upon which the method is based. Let the curve  $PA'Q$ ,  $Pa'q$  be a hyperbola, of which  $C$  is the centre, and  $Ss$   $S's'$  the asymptotes,  $P$  any point in the curve.

Through  $P$  draw any straight lines  $LL'$   $Pg$ , &c., so as to cut both the curve and the asymptotes in  $QL$ ,  $q$ , &c. Through  $Q$  and  $q$  draw  $QK'$   $qk$  parallel to  $Ss'$ , and through  $P$ ,  $PK$  parallel to the other asymptote  $Ss$ . Then shall the bases  $KL$   $kl$  of the triangles  $QKL$   $qkl$ , &c. be constant, and always equal  $PK$ .\*

The instrument is composed of five principal parts:—

I. A fixed point  $P$ , see fig. 4, which may be fastened to the drawing board by pins or weights, or any other method.

II. A straight edge  $DD'$ , which I call the asymptote bar.

III. A radial bar  $TT'$ , with a socket at  $L$ , on one side of which it is grooved as  $TL$  (compare fig. 4), and slit on the other as  $LT'$ , (comp. fig. 3).

IV. A bevel composed of two parts, the base bar  $FF'$ , and the parallel bar  $K'G$ . The former must have a point centrally placed on its upper line, and fitted to the socket  $L$  on the radial bar; it should also be graduated on each side of that point, towards  $m$  and  $C$ . It must be so contrived by grooves and clamps,

\* This is readily proved from the relations of the asymptote and the curve, with respect to conjugate diameters. Draw the axes  $CB'$   $CA'$  respectively parallel to  $LL'$  and  $Pg$ , and let  $CA'$   $CB'$  be their conjugates; produce  $CA'$  to  $N$ . It is a well known property of the conic sections, that each of the straight lines, forming a pair of conjugate axes will, if produced, bisect all chords drawn to meet the curve parallel to the other line. Hence because  $CA'$  is conjugate to  $CB'$ , and  $QP$  is parallel to the latter,  $\therefore NP = NQ$ . This property is independent of the size of the axis, and is, therefore, true of the asymptote itself, which may be considered a similar hyperbola to  $PA'Q$ , whose axis is zero. Hence also  $NL = NL'$  (the same thing may also be proved directly for the asymptote, as it forms the diagonal of the parallelogram, constructed about the centre, upon the conjugate axes.) But  $NL = NP = NL' = NQ$ , that is,  $PL = QL$ ; but the triangles have the angles about their equal sides equal, therefore the bases are equal, i.e.  $KL = PK$ . An exactly similar proof shows  $PR = qk$ , and therefore  $kl = PK$ .

that the parallel bar may be placed at any distance from  $L'$  along the base bar, and may make any angle with it.

V. The pencil tube, fig. 3, must slide between the two rails, if they may be so termed, of the slit portion of the radial bar, by means of the double flange on its lower part. The thickness of the flange must be let into the above-mentioned rails, but the tube itself fall a little below them. There should also be provided a spring of steel, or elastic band, to keep the pencil down upon the paper.

Let it be proposed to draw the curve  $PA'Q$  of the diagram figure 1, the asymptotes  $SsS's'$  and the point  $P$  being given. The position of the fixed point  $P'$  is first found from  $P$  by cutting off  $P'C = PC$  from the straight line  $PC$  produced.

The asymptote bar  $DD'$  is then fixed parallel to  $Ss$ , and just the thickness of the base bar  $FF'$  below it.

The bevel  $FK'G$  is so adjusted that  $L'K' = PK'$  or  $PK$  (allowance must be made for the semidiameter of the pencil tube), and the parallel bar  $K'G$  must be set parallel  $S's'$  and clamped, and further secured by a strut  $Mm$  provided for that purpose. Lastly, the socket and point at  $L$  must be fitted to one another, and the groove  $TL$  placed upon the fixed point  $P'$ , the pencil tube brought up to press upon the parallel bar as at  $Q$ , and the pencil itself upon the paper by means of the spring.

All that now remains to be done is to slide the base bar upon the asymptote bar, and keep the bottom of the pencil tube in contact with the parallel bar, which is generally done by the help of a piece of string. The curve may thus be drawn with great accuracy.

I have met with four other methods of drawing the hyperbola by continued motion: one is given by Mr. Olinthus Gregory, in his "Mathematics for Practical Men," another by Mr. Hymers, in his "Treatise on Conic Sections." The two others are the inventions of Mr. Child and Mr. Godfray, and have appeared in the "Mechanics Magazine." Of these the first is certainly the best; it does not, however, seem calculated to give so great a degree of accuracy at a distance from the vertex as the method here represented. The instrument described in this letter has also the advantage of supplying the means of drawing the conchoid of Nicomedes; for it will be obvious from the nature of the motion of the point  $L$  in the radial bar, along the straight line



SS, and about the fixed point P', that if the pencil tube Q be clamped to L'T, instead of having a certain sliding motion along it, the resulting curve would be the superior branch of the conchoid, as Qo.

It is curious to observe, that by thus adding an additional member, and thereby somewhat complicating the instrument attributed to Nicomedes, we produce a curve of greater mathematical simplicity than the curve called after that geometer, for a line of the second order is produced, instead of one of the fourth.

Again, if a socket be provided at the extremity of the radial bar at T', and fitted on to the point L', an exactly analogous modification of the inferior branch of the conchoid, will produce the hyperbola, and this is sometimes the preferable method. In the diagram fig. 1, the method first described corresponds with the letters Pqkl. The latter method with Pqk'L'.

F. C. PENROSE.

#### ON THE CONSTRUCTION OF HOUSES FOR THE PREVENTION OF FIRES.\*

STOVES are another fruitful source of mischief in private dwellings, shops, &c. A great number of fires are occasioned by these contrivances. A stove properly and securely fixed is what we have rarely met with: in almost all cases we have found them in close contact with wood-work. A stove will be placed on a wooden floor, no provision whatever being made to prevent the woodwork from being overheated. We recollect being once called upon to examine a stove which was suspected to be badly fitted up, a smell of burning wood always prevailing as soon as the heat was of considerable intensity. Suspecting the cause, we removed the stove from its place, and found the flooring beneath it quite charred and black, the ignition having been strongest in the centre: in a short time the floor would have been burnt through: a vent would thus have been created, and the consequences might have been serious. Such instances form a key to the solution of many mysterious fires. If a sheet of iron is placed beneath the stove, or if it is made to stand on an iron tray, it is thought that sufficient preventive measures have been used. In some cases, parties particularly careful place slates or sheet lead beneath, but this is generally the highest effort: none of these are sufficient. In stoves with a good draught, the ignition of the fuel on the bars is very rapid, and the heat thrown down on the plate beneath of considerable intensity; we have even seen lead melted in such places with facility. Moreover, servants and others will sometimes take out the burning coals, and place them on the plate: these often burn fiercely for some time, and the woodwork beneath is frequently ignited in consequence. The secure mode of setting stoves is to place them on a foundation of brick: two bricks' height will be sufficient, taking care to fill up the interstices between the bricks with fire-proof cement. If this foundation is objected to, an iron tray should be provided at least 4 inches deep, this being filled to a height of 2 inches with a cement which will harden well without cracking. The stove being placed in this, the heat thrown down will not be conducted through the cement, at least it will be so slowly conducted that the heat on the bottom plate will rarely be dangerous. Stoves should never be placed near the skirting board; this is too often done, and as if courting danger. Plates of blackened metal are nailed on the outside of the wood. This is done as a preventive measure, but unfortunately the contrivance is the very opposite of that which should be done: black absorbs the radiant heat thrown out by the stove. If white or polished surfaces were used, the danger would be less. While considering this, among other instances of neglect of precautionary measures in every-day business, indicated by science, we are inclined to wonder at the really little practical progress we have made in such matters. A lecturer in a scientific institution was pointing out, while noticing the phenomena of heat, the absurdity of having blackened surfaces round highly-heating stoves, at the same time that the stove in his lecture-room was furnished with these objectionable

appliances. We have often thought that it was a striking commentary on the little practical good that had resulted from his *stated* prelections in that place—where arrangements were suffered to be adopted in direct opposition to the principles he made it his business to elucidate. The iron pipes attached to stoves are often the cause of fire. "When they are not in use, particularly if much soot be left in them, they attract moisture, and are rapidly oxidized; then, when they become filled with soot, and the soot takes fire, it burns fiercely, and the fire drops through the rust holes and the joints; and if these droppings of fire occur between a wainscoting, or a batten and a wall, at the hole where the pipe enters the brick flue, it is likely to set the house on fire." Great carelessness is shown in the placing of the pipes. We have seen a hole cut in a wooden partition, the iron pipe lying against it, and, in one instance, a range of pipe carried along the ceiling, in close contact with it,—a quantity of dry goods, piled beneath, reaching to within a very short distance of the ceiling. It is lamentable to think that such gross carelessness should be matter of everyday occurrence. If iron pipes are used, they should be made of stout metal, and when passed through apertures in a floor or lath and plaster partition, the hole should be made much larger than the outside diameter of pipe. In this aperture a short length of earthenware pipe should be inserted, the inside diameter of which should be of size sufficient to allow the iron pipe to be passed through it. The earthenware being a very slow conductor, will prevent the heat from injuring the wood-work. All pipes should be hung at least 6 inches from the roof, by means of iron brackets or staples; they should never be allowed to be in contact with the ceiling, much less carried between the floor and ceiling. The hazard of the latter plan is the most "imminent and unwarrantable. Say what they may of surrounding the flue with incombustible materials, no flue can be made safe within a few inches of woodwork." We see no reason why earthenware pipes should not be used for stove flues: they can be had of all diameters and all curves. There is a species of stove (much used in shops) having descending flues. They are doubtless very neat, and the absence of the flue is considered an advantage, nevertheless their use is very much to be deprecated. "Descending iron flues from open fireplaces, or cast-iron stoves set up in shops and halls, are productive of frequent firings: whether they are conducted through the flooring and along the ceiling of the room beneath to an adjacent chimney, or are carried between the joists to such chimney, or just over a wooden floor, they are full of danger." Such is the opinion of one who has extensive experience in connection with the subject.

Great attention should be paid to the internal gas-fittings in houses: brackets, projecting from chimney-pieces, are prolific sources of mischief: they are made to swing round (sometimes in a large circle), and can be easily put in contact with the wall. We have seen in many houses the paper thereon burnt a long way up, in consequence of the gas jet, when lit, having been placed too near the wall. In bed-rooms, wall brackets should never be used, especially long ones, which can be taken near the bed. Gas wall brackets should in all cases have a strong glass shade covering the flame, or a wire guard may be attached near the jet, of some two or three inches diameter, so that the light, unprotected, cannot possibly get nearer the wall or woodwork by at least a distance equal to the radius of the guard.

That the defects we have pointed out are of no trifling moment, a brief thought will suffice to show. It has not been our purpose to prove that fireplaces and stoves are necessarily attended with danger, but rather to cause our readers to think for themselves, while pointing out defective arrangements,—to make them understand the causes of danger, so that they may set to work, and find out simple means by which the lamentable effects may be entirely obviated. The subject is one to which the public attention generally is now directed; they have been content to leave the matter hitherto in the hands of the builders; but this state of affairs is dying fast away, and it is but fair and right that all parties interested in building should give their earnest attention

to the subject. "A very slight effort of memory will revive the names of noble mansions, of noted public buildings, and of large manufacturing, which have been entirely destroyed," by some one or other of the foregoing causes. "The lamentable conflagration of Buchanan House, the splendid mansion of the Duke of Montrose, in Loch Lomond, is ascribed to the circumstance of an oaken window lintel having been too near one of the flues. \* \* \* Besides the houses actually destroyed, many make wonderful escapes, indeed no one can say, at any time, that his house is not in progress of ignition. Within the fabric of its walls, fire may be working its way silently and unobserved. Lately, in the course of certain repairs in Glamorgan-house, Peeblesshire, a beam of timber, charred and half burnt, was discovered in connection with the kitchen chimney: that it had not when burning set fire to the whole edifice is matter for extreme surprise. We have also heard, that in the case of some late alterations at Gore-house, in Lanarkshire, the fine modern mansion of Mr. Cranston, beams of timber were removed in a state half consumed by fire. It is really too bad that builders should exercise so little care in matters of such very serious concern."

A superficial observer would be inclined to think, judging from the lamentably little progress we have made in connection with the subject, that the promulgation of plans to insure fireproof construction has been of recent introduction. This, however, has not been the case. In 1748 Dr. Halls made several experiments with a view to render flooring fireproof. He caused a layer of earth to be laid on a board half an inch deep: a fire was maintained and kept in fierce ignition for two hours before the board was burnt through: the thickness of earth was one inch. This plan it is obvious was attended with many disadvantages; nevertheless it was important, inasmuch as it proved the benefit to be derived from employing non-conducting substances,—the leading feature, be it observed, of all succeeding plans. In 1775 Mr. Hartley was very successful in his experiments. His plan was nailing plates of thin iron on the joists, at their upper side, the edges being folded over, lapped and hammered close. The floors, staircases, &c., were protected in the same way: the expense of the plan when extended through a building being estimated about 5 per cent. This plan is worthy of consideration; no invention, however faulty, is totally worthless; it may have the good effect of setting people thinking, which is but the prelude to further improvements. The plan published by the Earl of Stanhope is calculated to be of eminent service to parties who are willing to attain knowledge on this important point. It was the first attempt at a complete system, so far as we are aware, and, independently of its inherent merits, it was valuable on this account—it has furnished many with extremely valuable hints. The plan may be briefly described. The principal part is what he terms under-flooring. The sides of the joists and main timbers are covered with laths of oak or fir, some quarter of an inch thick; the sides are to be completely covered, with the exception of a part:  $\frac{1}{2}$  inch deep near the top; this will make a ledge or projection on each side of the joist: before fixing the laths, the joists are to be covered with a coating of rough plaster hereafter described; pieces of laths are then cut, of length sufficient to go between the spaces of the joists, the ends lying on the ledges previously mentioned; these short pieces are to be laid close to one another, thus forming a kind of flooring, the bottom of which is  $\frac{1}{2}$  inch from the top of the joists, the intervals occurring between each being thus filled up: the ends of the cross pieces are to be deeply laid in the rough mortar, but not nailed as the other longitudinal laths are. On the top of this lath flooring, thus made between each pair of beams, a layer of the rough mortar is to be laid; this is to come up flush with the top of the joists. In a day or two, when somewhat hardened, the mortar is to be laid with a trowel home to the sides of the beams, taking care to allow none of it to be opened on the top edges. The method of double under-flooring is by spreading a thin layer of the rough mortar on the lath foundation, then pieces of lath, the same length as those under, are imbedded in the mortar while soft; then a

\* See page 242 ante.



fresh layer of mortar, another layer of laths, if necessary; but the last laid mortar will likely be flush with the top of the joists. The cross laths should be laid close to one another. Instead of using laths for the foundation, to support the mortar between the beams, iron plates might be used with advantage; these should be less by at least an eighth of an inch than the intervals, so as to allow of free expansion. If tightly fixed between the beams, when expanding, as lateral movement will be prevented, they will rise in the centre, and have a tendency to move the mortar. The bed of mortar may be made of any depth, by leaving a large enough space between the top of the joists and the last lath or fillet. Another important feature in the plan was what he called extra lathing. Before nailing the laths, the beams, rafters, or other places to which they are to be attached must be covered with a layer of the rough mortar. The laths should be nailed close to one another, and when the laths overlap one another, these should be carefully bedded in the rough plaster. On the first layer of laths thus made, a pretty thick coat of the plaster must be laid, and laths should be nailed to the first layer, each being firmly squeezed into the soft mortar; the second lathing may then be covered with a coating of the rough plaster, or finished as usual. Before laying the flooring, the plaster should be made thoroughly dry: to do this, three weeks may be necessary. In order to make it dry quickly, a fourth part of quicklime, in powder, should be mixed with it. If any cracks are, after drying, found in the plaster, particularly near the beams, by applying a little mortar wash with a brush they will be effectually closed. Just before laying the flooring boards, a little dry common sand should be laid on the bed of the mortar, but not on the joists. The rough plaster alluded to is made as follows: procure a quantity of hay, cut into lengths of 3 inches, not shorter; mix three measures of this with one of common sand and two of slackened lime; beat them well up, dragging the hay well in; the stiffer it is the better, provided it be not too dry for spreading with facility. The mortar wash is made, by mixing two measures of quicklime and one of common sand, with water, stirred up till it is the consistency of a thin jelly. This wash dries in a few minutes after being applied. To prove that this plan of securing buildings from fire has been eminently successful, we think it right to add the following account of an experiment made before the Lord Mayor of London, and a large body of scientific persons.

A wooden building was constructed, the methods adopted being extra lathing and double under-flooring. "The first experiment was to fill the lower room of the building, which room was 26 feet long by 16 wide, full of shavings and faggots, mixed with combustibles, and set them all on fire. The heat was so intense, that the glass of the windows was melted like so much common sealing wax, and ran down in drops, yet the flooring boards of that very room were not burnt through, nor was one of the side timbers, floor joists, or ceiling posts damaged in the smallest degree; and the persons who went immediately over the room filled with fire, did not perceive any ill effects from it whatever, even the floor of that room being perfectly cool during the enormous conflagration immediately underneath. He then caused a kind of wooden building of full 50 feet in length, and of three stories high in the middle, to be erected quite close to one end of the second wooden house. He filled and covered this building with above 1,100 large kiln faggots, and several loads of dry shavings, and he set this pile on fire. The height of the flame was no less than 87 feet perpendicular from the ground, and the grass on the bank at 150 feet from the fire, was all scorched; yet the secured wooden building, quite contiguous to this vast heap of fire, was not at all damaged, except some parts of the outer coat of plaster work. This experiment was intended to represent a wooden town on fire, and to show how effectually even a wooden building, if secured according to the new method, would stop the progress of the flames from that side, without any assistance from fire-engines."

It would be well if some practical improve-

ment in the construction of staircases could be effected. Made in almost all cases of wood, they generally present facilities for the spread of fire. Once the fire catches the stairs, the extension of the flames is amazingly rapid. Being soon burnt down, they prevent the escape of those unfortunate beings who may be confined in the upper apartments. In Scotland, where the staircases are in large blocks of buildings of stone, it is exceedingly rare to find, in cases of fire, that any human being has been consumed; they have always plenty of time to escape; whereas in blocks of houses in England, the stairs are almost the first place consumed, and the retreat of the inmates cut off: hence so much woful loss of life. Stone stairs (in separate houses the almost universal way of building in England), are and may be condemned as objectionable; but it is a libel on the ingenuity of our mechanics to say that staircases cannot be constructed light, elegant, and comfortable, and at the same time fire-proof. The Earl of Stanhope's plan of constructing them was by securing the wooden steps by means of his method of under flooring: we have previously described this, but we may here mention, that all attempts to fire a staircase constructed on this principle were unavailing. "Several very large kiln faggots were laid and kindled under the staircase, round the stairs, and on the steps; this wooden staircase notwithstanding resisted, as if it had been made of freestone, all the attempts that were made to consume it."

Light and elegant stairs can be made of cast iron, they are highly ornamental, but doubtless by some will be objected to. If wood is preferred why may not Mr. Hartley's method of covering the exposed parts with plates of iron or zinc be used? The latter material would be in every way preferable: zinc would last a long time, and be any thing but uncomfortable in use; it might be covered if thought necessary with carpeting. In the interior of houses non-combustible materials might be used with great advantage in every respect, economy as well as safety, in a more general way than is done at present. Public opinion is rapidly progressing on this point, and many improvements are being introduced. Various useful suggestions on the subject have appeared in our pages.

In the construction of roofs there is much room for improvements; as at present constructed they are extremely liable to combustion.

#### NOTES ON GAS.

THE Rugby Gas Company have declared a dividend of eight per cent. besides voting 100l. to a reserve fund, and having found out the advantage of lowering prices, they have passed from 7s. 6d. to 6s. 3d. a thousand cubic feet.

—The Southampton Gas Company are ready, it is said, to reduce the price of their gas to 6s. a thousand so soon as the arrears due to them for the public lights are paid up.

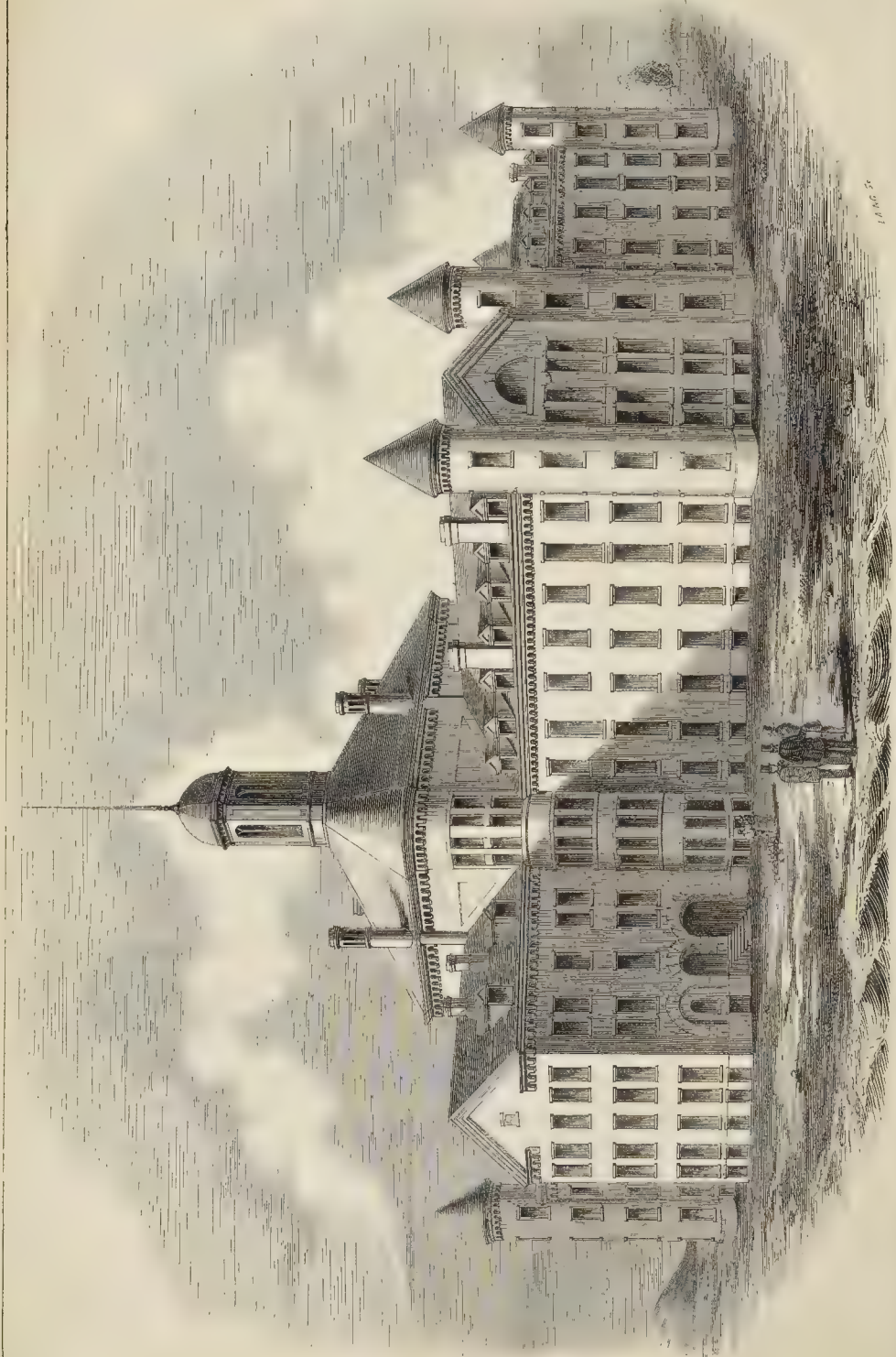
—This announcement is already reacting on Winchester, the gas company there being reminded by a Hampshire contemporary that the argument used by them for keeping up their very high prices was that 6s. a thousand did not pay at Southampton, and, as that argument is virtually at an end, calling on the Winchester Company at least to reduce their price to 6s. a thousand, a measure which, it is said, would infallibly allay the discontent now existing. —The price at Hinckley has been reduced to 8s. and a dividend of five per cent. declared. As in the case of Rugby just noted, and in so many other instances, doubtless the Hinckley Company have now a well-founded hope of thus exalting their dividend as they reduce their charge; for the true "rule of three" in gas concerns seems to be, that if 8s. give five per cent. 7s. 6d. will give 8, and 6s. 3d. still more, in due proportion, and a long way further down the scale of prices. —A correspondent of the *Leicester Journal*, in pointing out the reason which now induces the gas company there to offer a reduction to large consumers, these being able to help themselves by the erection of small works on their own premises, remarks,—"A few large consumers in Leicester, I learn, already help themselves in this way: at several village and other stations the railway companies do the same; and

so small have such works been constructed, that I have seen one contrived by its owner for only five lights, in a town where they paid 12s. 6d. per thousand feet for gas; and he told me that the actual cost to him, with coal at 18s. per ton, was not 2s. 6d. per thousand. The outlay on this miniature gas-work was 10l. If the gas company, therefore, do not lower their demands very considerably, they will, sooner or later, have a host of rivals whom they cannot exterminate; which circumstance will render the remaining customers very uneasy when they find that their neighbours are paying only a small price for the same article. They will then have to come down, after losing their larger consumers; and this, too, supposing that no new invention takes effect, tending to supersede the present kind of gas. Would it not be much pleasanter, think you, to lower the article and keep the customers, and by increase of consumption more than make up the deficiency to the shareholder?—a result which almost always succeeds a reduction in the price of gas." The difference between a large consumer and a small he estimates at not more than  $\frac{7}{10}$  per cent. for extra cost of collection, &c. There are many provincial companies now, however, who make no distinction whatever in their charges to small and to large consumers, and it is not easy, all things considered, to see why they should. —A specification was enrolled during last week for a new patent, by a Mr. F. C. Hills, of Deptford, manufacturing chemist, for certain improvements in gas-making, among which we perceive one for the purification of gas by means of the mere oxides of iron precipitated or hydrated, as suggested by us for trial, without any lime or sulphate, though mixed with sawdust, breeze, or other absorbent material, to allow of the passage of gas through it. "When the absorbing materials become inert," as related in the specification, "they are re-vivified by passing a current of atmospheric air through them;" so that, as anticipated, the iron oxide appears to become again as useful as before, without any help from sulphate of lime or other admixture. The same chemist has enrolled a mode of introducing air to the purifying material, and a mode of compressing peat for gas-making as well as for fuel generally. —The Great Central Gas Consuming Company's Bill has passed the ordeal of Committee, and been read a third time in the Commons. The City authorities, moreover, have agreed to allow them to make up for lost time by laying their pipes by day as well as by night in such side streets as their surveyor and they shall authorise. The Company intend, it is said, to proceed with the utmost diligence both by night and by day. It was shown to the satisfaction of a committee of the City authorities, that the Directors have now 75,000l. in hand. We have not space this week to note any of the more interesting or important points in the report before the Commons' Committee, but shall recur to it.

THE INSTITUTE OF ARCHITECTS.—At an ordinary meeting, held on Monday, the 10th inst., Mr. Salvin, V.P. in the chair, Mr. A. J. Beresford Hope, M.P., was elected honorary fellow; Mr. A. Salvin, jun., associate; and Herr Zahn, of Berlin, corresponding member. A paper was read by Mr. C. Fowler on "Terra Cotta and Artificial Stone as connected with Architecture." A paper was also read descriptive of a new method of converting gas, and other elastic fluids, having an affinity for oxygen, into fuel for fire, by Mr. D. O. Edwards.

BUILDING WORKMEN'S PROVIDENT SOCIETY.—The subscription list of this commendable association is progressing rapidly. We rejoice to find that the amount has now almost reached 900l., and is daily on the increase. We hope not only to see it supported by a great majority of the workmen, and patronized by every leading name without exception, in the building and engineering businesses interested in its objects, but that by the junction of other provident and benevolent associations of a kindred nature with it, a powerful corporation, embracing in its beneficent grasp every branch of the building trades, will be the result of the more isolated efforts by means of which these foundations are at present being laid.





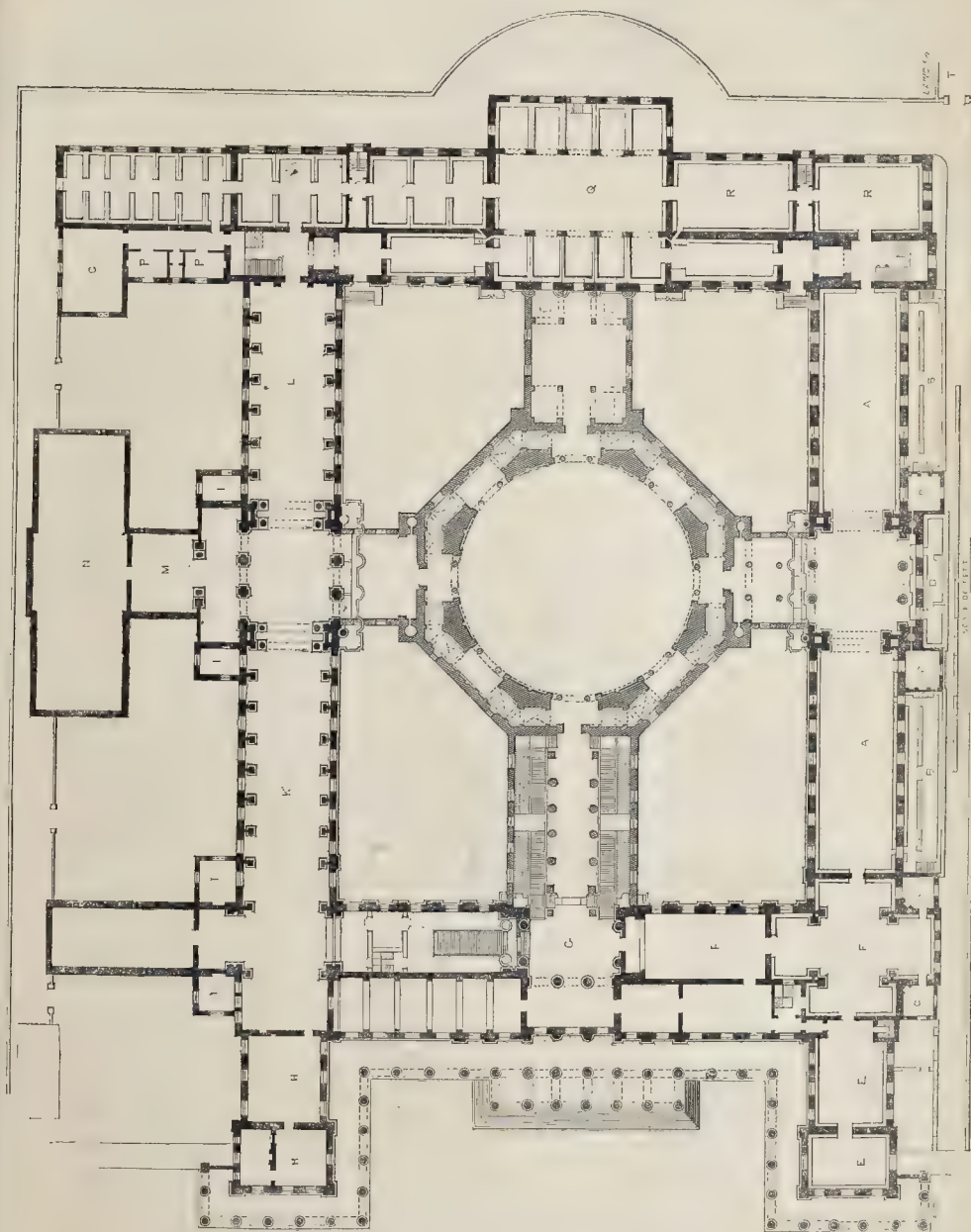
THE NEW ALMSHOUSE ON DEER ISLAND, BOSTON.—MRS. DWIGHT AND BRYANT, ARCHITECTS.

[See page 250 in our present number.]



## THE BRITISH MUSEUM.

PLAN SHOWING PROFESSOR HOSKING'S DESIGN FOR EXTENDING THE ACCOMMODATION.



ENTRANCE FRONT.

## References:—

A A Royal Library.  
 B B B Proposed additions for printed books.  
 C C Officers.  
 D D Rooms proposed for receiving, sorting, &c.  
 E E Manuscripts rooms, now used as reading-rooms.  
 F F Departments of manuscripts.

G Entrance hall.  
 H H Rooms for trustees.  
 I I I I Officers.  
 J J J J Miscellaneous antiquities.  
 K K Miscellaneous antiquities.  
 L L Gallery of Egyptian antiquities.  
 M M Phigalian marbles.  
 N N Gallery of Athenian marbles.

O Print room.  
 P P Officers.  
 Q Q The library of printed books.  
 R R Reading-rooms.  
 S S Gardens of the houses in Montague-place.  
 T T Approach from Montague-place.  
 U U Gardens in Montague-street.

# PROFESSOR HOSKING'S PROJECT

FOR EXTENDING THE ACCOMMODATION AND IMPROVING THE MEANS OF INTERNAL COMMUNICATION OF THE BRITISH MUSEUM WITHIN THE SITE ENCLOSED BY THE PRESENT BUILDING.

It occurred to Mr. Hosking many years ago,—as soon, indeed, as the progress of the works

had developed the plan,—that an important and valuable addition might be made to the new buildings of the British Museum within the area which they now embrace, without any derangement of the design, at no extravagant expense, and with great advantage, both as it regards the purposes of the Museum and the convenience of the public. Obvious motives,

however, deterred him from making public any suggestions that might have the effect, or even the appearance, of interfering with the work of another while the design was incomplete, and while there was no pressing demand for more room and greater accommodation than the original design provided. But the original design being now in effect completed, and



its author having retired from practice, whilst the objects of the establishment have outgrown the provision made for them by that design, and projections, indeed, having been made on, or from, one at least of the outer flanks of the building, and in extension of one of its fronts, to supply the advancing demands for room, while available space in the most convenient position, with regard to the establishment generally, remains unoccupied,—the author does not feel that he need be deterred any longer from stating formally and publicly the ideas which he had formed upon the subject.

Mr. Hosking's object is to show how space, left unoccupied by the existing buildings, may be applied to meet the demand which has grown up since they were designed; that is to say, to obtain more room for the reception and exhibition of the objects of the establishment without going beyond the site now occupied or embraced by the Museum, and to facilitate the access, to the objects already provided for, of the unaccounted number of persons who seek amusement and instruction within the walls of the Museum.

Mr. Hosking assumes that there can be no objection to the occupation, by buildings in addition to the Museum, of the now uncovered quadrangular court or cloister enclosed by the present buildings, so far as it may be done without injury to their light, inasmuch as that court does not come into use in its present condition, and does not contain any object of which it has been thought necessary to present any view from the buildings which make it a cloister. This quadrangle appears to be 317 feet in length and 233 feet wide, and none of the buildings fronting to and deriving light from it are as much in height above the level of the sills of the windows as one-fourth of the breadth of the quadrangle; whilst, as a general rule, the breadth between opposite buildings need not be more, as it regards light to the windows, than the height above their sills of the buildings opposite to them; and if, in the present case, the unoccupied ground be built upon in such manner only that the distance of any building from opposite windows be more nearly twice, than once, the height of the building above the sills of the windows liable to be affected, there can be no injurious effect produced upon the windows of the present buildings by any such occupation of the cloistered site.

Mr. Hosking assumes, too, that it will not be deemed an unreasonable interference with the present buildings to remove those parts of the outer walls to the quadrangular court with which any additional buildings may come in contact, for the purpose of intercommunication, and to restore the light now coming by windows, which such additional buildings, were brought into contact with the present buildings, would necessarily obliterate.

We give Mr. Hosking's proposition in his own words, as submitted to the Trustees in November last:—

"My project is, then, to build in the middle of the quadrangular court, inclosed by the present main buildings of the museum, in the manner shown in the accompanying plan, a modified copy of the Pantheon at Rome,—that is to say of the cupola-covered rotunda known by that name,—as nearly the full size as possible, consistently with the size of the area, and with the height of the present buildings, and so to form a grand central hall for the exhibition of the finer and more important works of sculpture, and of such other objects proper to the purposes of the Museum as most require that steady and equable light which is so well obtained from the eye of a cupola. A quadrilateral hall, to contain ample staircases, would lead from the present entrance vestibule of the Museum into the grand central hall or rotunda, and by the floor of the rotunda itself, or by a corridor about it to the east, west, and north galleries respectively, through new compartments added to them on the level of the floor of the lower or principal story of the Museum; and the staircases would lead up to a bridge-way or continued landing on the floor of the upper story, where another similar corridor about the rotunda would afford similar facilities of access to the upper, east, west, and north galleries, whilst the bridge-way would also make the communication complete to the south gallery. The formation of stair-

cases in the place and manner indicated would allow the space now occupied by the grand staircase to be restored to the purposes of the Museum, and thus make the circuit complete in both stories, whilst every part would be rendered, by the before-described arrangements, alike accessible from a common centre.

"In taking the Pantheon as a model for the grand central hall, it may be proper to observe that its proposed adaptation is perfectly consistent with the original design of that structure, which made it the centre of a more extended building, above the other parts of which its cupola rose, as the cupola might in this case rise, above the other parts of the Museum; for the design will be seen by the drawing\* to carry the connecting galleries to no greater height than the height of the present buildings, with which, indeed, the fronts to the cloisters may be made to correspond in elevation. The Pantheon is 143 feet (English measure) in diameter upon the floor, and it is 143 feet high from the floor to the curb round the eye of the cupola; but as a full-sized copy would crowd the space, and, by its magnitude and height, overpower the existing buildings of the Museum, the present design limits the diameter of the rotunda, and consequently its height, to 120 feet, and giving more than an equivalent thickness to the inclosing walls—which are resolved externally into an octagonal form—takes out of the walls a corridor 10 feet wide, and obtains thereby nearly all the space upon the floor that a full-sized copy of the Pantheon would give.

"The accompanying plan shows that what is here proposed may, as first remarked, be effected without any derangement whatever of the original design of the building, while it adds new room and increased facilities to the Museum without going beyond the present inclosing walls. The plan of the present buildings is copied from the only plan accessible to the author,—that attached to the report of the Committee of the House of Commons, published in 1838. The portions of the present buildings required to be removed to receive the suggested additions are left in outline, and the suggested new buildings are shaded more faintly than those which now exist, and would remain undisturbed by the present scheme.

"The additional room which this project would give to the Museum is, 1st, The great central hall, with one floor of 120 feet in diameter, yielding an area nearly equal to twice the area of the present Athenian or Elgin Marbles Gallery; 2nd, Two inscribing octagonal corridors, each 10 feet wide, and each comprising an area of between four and five thousand superficial feet, and each also presenting niches fit to receive statues, and extensive wall surface fit to receive sculptured reliefs and inscriptions; and, 3rd, The connecting galleries on the east and west sides, each 45 feet by 35 feet, and in both stories; the north connecting gallery 65 feet by 50 feet in the principal story, and 35 feet by 50 feet in the upper story, and the site of the present staircase in both stories. This additional room may, the author believes, be obtained at a cost not exceeding that of any one of the existing sides of the Museum."

#### THE BUILDING PLANS FOR THE '51 EXHIBITION.

##### PARTICULARS FOR TENDERS.

On Monday next, according to advertisement, the particulars will be obtainable by parties willing to tender for the erection of the proposed building.† It will be found that the works are divided into eight portions. Every tender must be accompanied by the schedule of quantities of the portions tendered for, fully priced and moneyed out, in a form supplied.

If a tender for labour, use, waste, maintenance, and removal, it must include the top-soiling of the site to as nearly as possible its present form, within a reasonable time after the removal of all the works.

Tenders for methods of construction other than those shown upon the drawings and described in the specification will be entertained, if accompanied by working drawings, and speci-

fications, and fully-priced bills of quantities; but if any such tender shall not show clearly and truly the comparative cost of the system proposed and that shown upon the committee's drawings, &c., it will not be entertained.

All tenders are to be delivered at the Palace of Westminster on July 8, 1850.

The Commissioners are to be distinctly understood as not binding themselves to accept any tender, or to make any remuneration whatever for any tenders, or for any trouble or expense incurred.

If we were to say how many letters we have received respecting the award on the competition plans we should be open to a charge of exaggeration. One and all, without exception, coincide in our statement of the matter. The fact is now undeniable that the building committee have erred: too many cooks have spoiled the broth. The designs pointed out for greater honour are not those which have "been wholly or partially adopted," or have afforded "the most useful suggestions."

The secret history of the error is a curious one, and will one day perhaps be told. Some of the English competitors are exceedingly indignant, and propose the publication of a counter report. We insert two communications, selected from the batch.

In this case no premium has been offered—a shabby proceeding enough, in a matter where 150,000*l.* is to be expended. The designer of the work, the planner of the whole—the master spirit—is to have nothing, while the mechanical contractor will probably make a fortune. Still, however mean and shabby this may be, and although it is possible it has kept out of the competition many whose time is much absorbed—in fact, is their money,—nevertheless it is as fair for one who chooses to compete as for another, and on this account it the more behoves the committee to act with the strictest good faith. The man who strives for honour has deeper feelings, perhaps, than he who strives for money rewards. In the latter case, all the mischief done is the missing a payment; in the other, it is a painful failure. One man is exalted at the expense of another; one man humiliates the other. He does not merely draw the lucky number that gives him the prize, but he is supposed to *vanquish* the other in the lists, and send him home wounded from the combat, and with arms reversed.

It is not my intention to remark on the general poverty of invention and the low character of the designs. Next to this, that which strikes the spectator the most is the utter disregard of the instructions. These are particularly stringent. Their language is not that of suggestion, but absolute command. "Must be," "must not be," in every line. Besides, we read this strong intimation,— "No communications inconsistent with these conditions, or any plans prepared upon a different scale from that prescribed, can be received." I think that instructions were never so set at defiance before. It is not my intention to inquire whether these conditions were well drawn or not. It is sufficient for us to know that they exist, and that those who have violated them have taken an unfair advantage over those who have complied with them. It would be like suffering some jockeys in a race to throw away the weights they carry, and compelling others to bear their full burden home to the weighing-stand. I contend, that with such instructions it was imperative on the committee first of all to go over the plans, and at once to put aside those in variance with their conditions. Instead of this, we have every requirement openly set at defiance. Instead of a temporary, economical building, the materials of which might be converted again with little loss, of given dimensions, within given spaces, to given ends, we have huge palaces, porticoes as large as that of the Exchange, sculpture, polychromy, copies of the Tulleries and Invalides, buildings of permanent character and outrageously expensive construction, of double the height that could be needed, covering not half the required space, and utterly disregarding the plan, cast-iron ribs that would span St. Paul's, "bold construction," as the committee call it, the principal boldness of which appears to be the audacity which would offer such a design, and last, not least, drawings on several sheets, to several scales, and, worse than all, huge and expensive models. I do contend that all these should at once have been rejected, and that it is eminently unfair to those who have complied with the instructions, that their plans should be hung side by side by those who have utterly set them at naught.

But what is worse than this, the greatest offenders of all seem to be among the favoured eighteen selected for special honour, as you have already shown. Of these, no less than ten do not give the quantity of space, some not half enough; five do

\* The drawing includes longitudinal and transverse sections of the whole building, but these are of necessity omitted here.—Ed.

† The sum required to be paid for these particulars is too large.



not regard the plan at all; six give buildings of expensive and permanent character; four of them are magnificent palaces; four take liberties with the scale; eight make the body of the building of extravagant height; and the five who comply with the conditions in other respects, give mere sheds without character or architectural effect.

It is mortifying to look round the walls, and see some half-dozen designs which have strictly complied with the rules, and have as much or more merit than those selected, wholly unnoticed. I do not know whether it is from motives of courtesy so many foreigners are honoured by notice. One thing is clear, they have violated all sort of rule and requirement; there are scarcely two which would be at all suitable for the purpose, and these are merely a collection of sheds without effect or architectural character. On the whole, I cannot but consider the entire affair as likely to do serious injury to the profession (especially as the act of a committee of architects), and I do hope it will be taken up by able hands than mine. You, Sir, have already made some powerful remarks on the subject; let me hope that you will continue to follow them up, and that they may lead to what we never have seen yet, "perfect fair play in competition."

#### A NON-COMPETITOR.

You were quite right when you said, some time ago, that the plan of an architect at Islington had been mainly adopted by the committee. I assert positively that they took the idea of their plan from Mr. Courtney's plan, yet I do not find his name among the eighteen.

#### ONE ACTING WITH THEM.

#### CURVES.

GOVERNMENT SCHOOL OF DESIGN.

At Mr. Jopling's fifth attendance, Somerset House, on the 11th instant, after pointing out the triangular adjustments of one of his double crank apparatus, which directs to a vast variety of beautiful curves, considered applicable as forms for vases, &c., he then explained the relation of the cardioid to the cone. Finding that by different apparatus the cardioid is produced by the reciprocity of those motions which produce the ellipse, and as the ellipse is a section of a cone, he said, he has, for several years, frequently inquired what, in reference to the cone, is the cardioid? There is now little doubt but that the cardioid was known to the ancient Greeks; yet, in mathematical works of the present day, the first notice of it only appears in the sixteenth century, and it is known as the "cardioid of M. Carré," and what is described as "Pascal's snail" is a part of it.

But to the inquiry, what is the cardioid in reference to the cone, no answer has been given, nor any explanation found in any work. The lecturer had, on various occasions, for the like period of time, explained, by means of a continuous chain, crossed and looped over a cone, what he considered indications of a series of nodated cardioids. At length he found, that simply by applying a circular disk of paper in different positions on the surface of a cone, from the apex downwards, he could obtain a gradation of lines on the conical surface, from the cuspidated cardioid, through a series of inflected and oblate forms.

He then tried to produce the nodated forms by similar means; but on making a flat ring of paper to represent the chain, and putting it on the cone, it would neither lie close on its surface, nor could it be properly or easily so applied by bending or twisting. In order to do this nicely it was found that the ring must be cut (Columbus's egg over again); this being done, the flat ring of paper, or a circular disk with a cut towards its centre, could then be passed twice round the cone, laid close to the surface, and thus produce the gradation of nodated lines previously indicated by the chain.

By ocular and practical geometrical demonstration this is made evident, and proves that these several lines produced by circular disks and rings, applied on the surface of a cone, are, when projected on the plane of its base, the true cardioid of M. Carré, and all accompanying changes. As to the applications of this simple discovery, it may be briefly stated that a conical surface has the property of changing the curvature of circular disks or rings applied to it—increasing and decreasing the radius of curvature at different points; inflecting, cuspidating, and nodating.

Mr. Jopling shewed that the conical surface

changes simple right lines (straight lines drawn on paper, or right-lined strips of paper) into various pleasing curved forms. Further, that the ellipse, and, indeed, any true line, may be applied to the surface of a cone in a similar way, and produce regulated changes in their forms.

#### CHURCH-BUILDING NEWS.

THE contracts for the restoration and repair of the chancel and chancel aisles of Wimborne Minster are taken, and the work will be shortly commenced. The contractors are,—for masons' and excavators' work, Mr. James Knott, Wimborne,—for carpenters' and ironmongers' work, Messrs. Gover and Son, Winchester,—plumbers' and painters' work, Mr. Matthew Hall, London: architects, Messrs. Morris and Heblon, London.—It is proposed to enlarge St. John's Church, Moulsham, by the addition of north and south transepts and other extensions, with 300 additional sittings, and also of a bell tower and spire. The plan has been furnished by Mr. James Clarke, diocesan architect, and is prepared so that the transepts &c. can be first added. The edifice itself cost about 3,000*l*. The estimated cost of the new works will be, for—

	£.	s.	d.
North transept .....	358	3	0
South transept .....	358	3	0
Chancel, north chancel, aisle chancel, and vestry .....	495	15	0

For increase of accommodation.... £1,212 1 0

Tower .....	654	16	0
Spire .....	430	0	0
Porches .....	147	6	0

£1,232 2 0

A committee has been appointed by a meeting of parishioners reported in the *Chelmsford Chronicle* to open a subscription list.—St. Jude's Church, Birmingham, the foundation-stone of which is to be laid on 24th proximo, is to contain 1,300 sittings, a thousand of them free. The contract was taken for 2,810*l*., and is to be completed by Midsummer, 1851. The subscriptions are still about 800*l*. short, according to *Aris's Gazette*.—The newly-erected Roman Catholic Church of St. Thomas of Canterbury, at Erdington, was consecrated on Tuesday week. It has been erected in the Early Decorated style, with nave, aisles, and chapels, and at the sole cost of the Rev. Daniel Haigh, a convert, from designs by Mr. C. Hansom, of Clifton; sculpture by Mr. Henry Lane. The cost is estimated at about 12,000*l*. or 14,000*l*. in addition to an endowment of 200*l*. a-year.—

The new church at Swindon, founded on Friday in last week, is to be built on an elevated site given by Mr. A. Goddard, M.P. The style will be Decorated Early English, with tower and spire, nave and aisles, north and south transepts and chapels, and the building is to accommodate 1,000 persons.—In consequence of a desire to enlarge the parish church of St. Andrew, Rugby, a plan has been got from Mr. Fergusson, in which he proposes to erect, in the first instance, transepts and a new chancel, and gradually to rebuild the entire church on an enlarged scale. By the new transepts and their galleries he proposes to provide 450 additional sittings. On the completion of the entire church, this number would be increased to 1,000 additional sittings for adults. The estimated cost of transepts and chancel is 4,000*l*. and the remaining portion a like sum. Great part of the sittings are to be free. A subscription is to be entered into immediately, but the rebuilding itself is to be carried out by an accumulating fund.—The rebuilding of Scott-street Wesleyan Chapel, Hull, is contemplated. The building is to be an enlarged one, and not quite so plain as the present. Its exterior (says the *Packet*) will probably resemble Wesley Chapel, Humber-street (which is of stock bricks), but on a larger scale. The cost is, we hear, estimated at about 3,000*l*. The chapel was built forty-seven years ago, and the need of increased accommodation has been successively felt prior to the erection of Waltham-street, Humber-street, Great Thornton-street, and Kingston Chapels.—The new Congregational Church at Newbro'-bar, Scarborough, designed by Mr. R. Brown, of Liverpool, is nearly completed.—St. Catherine's

Catholic Church, Penrith, was opened on the 11th inst. It has been erected from designs and under the direction of Mr. Atkinson, of Carlisle, and is of decorated architecture, with high open roof. The chancel is divided from the body of the church by a light roof screen. The east window, by Scott and Son, of Carlisle, contains, in six compartments, the principal events in the life of the Saviour.

#### THE ARCHÆOLOGICAL INSTITUTE AT OXFORD.

THE introductory meeting was held on Tuesday, the 18th, in the Sheldonian Theatre, the Marquis of Northampton in the Chair. In the Town-hall, at night, Dr. Harrington, the principal of Brasenose, read a paper on St. Mary's Church, now under repair externally. The Architectural section met on Wednesday, and the following papers were read:—On Dorchester Church, by Mr. E. A. Freeman; on the Construction of Timber-houses in Berkshire, by the Rev. James Clutterbuck; on the Art of Glass Painting, and the Ancient Glass of Oxford, by Mr. C. Winston; and on the Manor-house of Mere, Wilts, by Mr. Nesbit.

We shall have something to say next week.

#### MISCELLANEA.

PROVINCIAL.—The enlargement and improvement of the Guildhall, Southampton, is in progress. When finished, the alterations will enable the hall to hold 800 to 1,000 persons.—The inhabitants of Merthyr Tydvil have been presented by Sir John Guest, bart., M.P., with 1,000*l*. to help them to build a new town-hall. This spirited example was followed up as spiritedly by the tradesmen of the place, thirty-seven of whom at once subscribed their 25*l*. each, and a long list of others 10*l*. and 5*l*. each. The building, under such auspices, is of course to be forthwith erected.—At a meeting of Dukinfield ratepayers the sum of 1,050*l*. was promised in half an hour for the erection of a new bridge over the Tame.—The trustees of Sir J. W. Ramsden, bart., have considered suggestions made by the committee of the Huddersfield Improvement Commissioners, and have published a revised plan, from which it appears that the principal street, to be called "John William Street," will be made sixty-six feet wide, and provided with a back; several other streets also to have that necessary sanitary appendage. The plan, however, does not provide increased market accommodation, nor any open square or place, as "lungs," in the centre of this populous town.

MODEL DWELLINGS FOR NEEDLEWOMEN AND OTHERS.—Liberal contributions received in response to an appeal by the Bishop of London, have enabled the committee appointed for the purpose, to purchase a freehold site in Portpool-lane, Gray's Inn-road, on which is to be erected a model dwelling for 20 families and 128 single women, while an existing building is to be converted into a washhouse for the neighbourhood. Under the washhouse will be repositories for perishable goods—such as those of street costermongers. The accommodation for 20 families will consist of two buildings four stories in height, one having three tenements with three rooms on each floor, and the other two tenements with two rooms on each floor, a scullery, &c., being provided for each family; whilst to both houses there will be an open staircase, and to the larger one a gallery of communication. The 128 single women will occupy 64 rooms on a building of four stories divided by a central staircase, with corridor on each side forming a lobby to eight bedrooms, each 12 feet 6 inches long by 9 feet 6 inches wide, and large enough for two persons. The charge is to be 1*s*. each person, or 2*s*. per room weekly. Except the washhouse roof the buildings will be fireproof, and the cost, including site, will be from 9,000*l*. to 10,000*l*. The actual sum received does not exceed 5,300*l*., and the committee are naturally anxious for further assistance to avoid borrowing on mortgage.

DESIGNS FOR THE 1851 MEDAL PRIZES.—115 designs in plaster, and ten drawings for medals, have been received in competition, and are now on view at the House of the Society of Arts, in the Adelphi.



**PROJECTED WORKS.**—Advertisements have been issued for tenders, by 29th inst., for some improvements in the works at Plymouth Citadel; by 1st prox., for the construction of a brick drain about 1,900 feet long, at Portsea; by 2nd, for the erection of a parsonage at Barnard Castle; by 1st, for the erection of a new bridge over the river Leam, at Leamington Priors; by 1st, for cast-iron girders, &c. for a warehouse in re-erection at Bristol; by 28th inst., for the erection of a savings' bank at Howden; by 27th, for the execution of works to highways at Sheffield; by 1st prox., for the re-erection of a warehouse at Bristol; by 29th inst., for alterations and additions to a house at March, Isle of Ely, with offices and stabling; by 25th, for erections of additional offices at the Derby station of the Midland Railway; by a date not specified, for an addition to a Catholic church at Southampton; by 26th inst., for cast-iron water-pipes, branches, and fire-pipes for Southampton Water-works; by 1st prox., for painting, papering, and repairing stations, cottages, &c. on London and Brighton Railway (about 270 in number, in four contracts); by 26th, for asphalted brick platforms at London station of Great Northern Railway; by 26th, for wood-paving at same; by 1st prox., for erection of a rectory-house and offices at Aston Clinton, Bucks; by 2nd, for ten horse-boxes and ten carriage-trucks; and by same date for 100 sets of wrought-iron carriage-wheels and axles, all for Great Northern Railway; by 29th inst., for switches, crossings, chairs, tank, pumping-engine, &c., for Royston and Hitchin Railway; by 26th, for cast-steel files, rasps, rubbers, and ironmongery for East-India Company; by 28th, for building stations and other works at Alnwick and Bilton; by 24th, for erection of a toll-house near Sheffield; and by 6th prox., for erection of a police-station and strong rooms at West Bromwich.

**ARCHAEOLOGICAL RESEARCHES.**—During the annual meeting of the Bury and Suffolk Archaeological Institute, on Thursday in last week, a tumulus at Moulton, near Newmarket, was partially opened, but left by the meeting, who passed on to the Castle-hill, at Cheveley, where excavations showed the site and the stronghold of ditch and vallum. The Church and that of Wood Ditton next engaged attention, with the Devil's Dyke, at its termination, where the ditch and rampart are upwards of 45 feet deep, and at the bottom of which a paper was read on the probable formation of this work. At Newmarket an exhibition of local curiosities was visited, and papers by Mr. A. Way, and Mr. Deek were read, after which the members adjourned to dinner at the Ram Inn, where forty to fifty of them spent the remainder of the day.

**NEW AERIAL MACHINE.**—Another of those persevering endeavours to acquire such dominion over the air as is already possessed over the ocean, is now being made by a Mr. Bell, who has had a balloon constructed on a new principle, with means of guidance and progression in wind floats appended to the car, which hangs in form of a boat by bands from each pole of the balloon, the latter being oblong laterally, though rounded at the ends, and floating in its length horizontally, or, as it were, sideways, compared with the position of other balloons in the air. We happened to see this machine while on its first voyage across the metropolis, but were not much impressed with confidence in its steadiness of movement. On the contrary, it seemed to sway to and fro in rather a disagreeable way, as if something were wrong. This may have arisen partly from its extremities alternately disappearing from view as it really oscillated in the breeze from side to side: nevertheless, it made way steadily in one uniform direction—whether by the power of the current or that of the paddles and the tail or rudder, we cannot say.

**THE LAND SURVEYORS' ASSOCIATION.**—The petition adopted by the Surveyors' Association for presentation to Parliament, for protection from interference by the Ordnance in the civil duties of the land surveyors of Great Britain, has been sent to every county in the kingdom, and, from the readiness with which it has been received and signed, it would appear the provincial land surveyors have as much and more to fear than the metropolitan from the encroachments complained of, which have assumed a position of vital importance to a

large and respectable profession. The London petition remains for signature at the offices of the Association, 21, University-street, Bedford-square, but by means of a printed copy, with space for signatures, any member of the profession wishing to sign, and living at a distance, may be able to add his name, such copies to be bound up, as vouchers, with the original petition.

**ADVANTAGES OF EDUCATION TO MECHANICS.**—It has a tendency to exalt the character, and, in some measure, to correct and subdue the taste for gross sensuality. It enables the possessor to beguile his leisure moments (and every man has such) in an innocent, at least, if not in a useful manner. The poor man who can read, and who possesses a taste for reading, can find entertainment at home, without being tempted to repair to the public-house for that purpose. His mind can find employment, where his body is at rest. There is in the mind of such a man an intellectual spring, urging him to the purpose of mental good; and if the minds of his family are also a little cultivated, conversation becomes the more interesting, and the sphere of domestic enjoyment enlarged. The calm satisfaction which books afford puts him into a disposition to relish more exquisitely the tranquil delight of conjugal and parental affection; and as he will be more respectable in the eyes of his family than he who can teach them nothing, he will be naturally induced to cultivate whatever may preserve, and to shun whatever would impair, that respect.—*Robert Hall.*

**OLD WALL PAINTING UNCOVERED.**—On removing a partition above the screen in Dantsey Church, Wilts, it turned out that the front of the partition was oak board, with laths nailed to it, and plastered. A painting was discovered covering the whole surface, sixteen feet by ten, and in very good preservation, considering its ancient date. It is a rude painting of the Day of Judgment.

**BACKS OF LOOKING-GLASSES.**—In the upper windows of our best houses in our best streets, the back of the chamber looking glass annoys the eye; is there no cabinet-maker that will introduce something more agreeable by the year 1851? A back painted either in grained wood or landscape, to fit nicely in the frame with brass pins, would be better than the present unfinished appearance.—D. E.

**COMPETITIONS.**—Designs are wanted, as advertised, for shears for lifting masts, boilers, &c. (premium 10*l.*), and for erection of two machines for lifting ballast (premium 10*l.*), both for the Sunderland Dock Company.—A premium of 20*l.* is also offered by the Burnham Local Board of Health, for the best plan, estimate, and specification for draining the town of Burnham, and supplying it with good water—particulars as advertised.

**DRY-ROT IN BUILDINGS.**—A communication was made at a late meeting of the Linnean Society respecting a peculiar form of dry-rot which spread with extreme rapidity in the church of King's Wear, Devonshire, by means of long, byssoid, rope-like shoots, different in the mode of their development, except on a very small scale, from anything which had before come within our notice. A still more curious case, which we are inclined to refer to dry-rot, has lately been sent to us for inspection, reminding us of the mural leprosy of Judæa, attacking, as it does, and more or less destroying, not merely the timber, but the solid walls themselves. It occurred in an old house near Erith, on the banks of the Thames, where it has penetrated into every crevice in and between the walls and wood-work, separating the bricks and mortar, and rendering the whole so friable that the walls must be rebuilt, to prevent their falling down. The mycelium here forms a widely expanded network of threads, which are twisted together in every possible way, so as to form anastomosing strings, of considerable tenacity, as thick as small pack-thread. A strong solution of corrosive sublimate is an effectual cure for such affections, where it is possible to apply it; but where, as in the present instance, the plague infects the whole substance of the structure, destruction seems to be the only remedy. The circumstance of the mycelium penetrating into the mortar and brickwork to such an extent appears to be new, at least we do not recollect to have heard anything of the kind before.—*Gardeners' Chronicle.*

**MEDIEVAL EXHIBITION AT THE SOCIETY OF ARTS.**—We are glad to observe that the Society of Arts have reduced the price of admission to the Exhibition of Ancient and Mediæval Art to Threepence. This change has been made by the council of the Society with the view of affording the artisans in the several branches of art-manufacture exhibited an opportunity of inspecting the works of their predecessors. We hope it will be extensively taken advantage of.

**NORTHERN METROPOLITAN PARK.**—We are glad to observe the stir that is being sustained in attempts to realise the suggestion in *THE BUILDER*, that a park should be laid out in the northern part of the metropolis. A public meeting is to take place on Friday evening next at Sadlers' Wells Theatre, Lord Robert Grosvenor in the chair, when we hope to find some further steps taken towards carrying out so desirable an object.

**NAILERS' STRIKE.**—The strike has in a great measure terminated. It has thrown a great deal of trade into the cut and machine nail-makers' hands, but the stock in wrought nails has been considerably reduced. The arrangement with the money-paying masters has been to give the money struck for, for one month, to afford the workmen an opportunity of procuring uniformity of price throughout the trade, and of using their utmost efforts to do away with the truck system.

**FOREIGN BRONZES.**—Great quantities of continental bronzes are being imported into London. They are exceedingly varied in design and in value. Those not ranked as works of domestic or other use, but as mere works of art, are admitted duty free.

**STONEWARE PIPES.**—Tenders for providing 2,700 feet of best Glazed Stone Sewer Pipes, 15 inches and 12 inches internal diameter, with all Junction Bends, Syphon Traps, Brick 12-inch Shoots, &c. at Holloway.

Dore .....	£450 0 0
Garner .....	373 0 0
Green .....	367 0 0
Marshall and Co. ....	360 0 0
Hewes .....	357 0 0
Barclay .....	355 0 0
Boyd Smith .....	349 4 6
Balls .....	313 0 0
Leak .....	335 0 0
Batterby .....	329 0 0
Brown and Maylin ....	320 0 0
Radley and Rogers ....	309 6 8
Redling .....	282 12 0
Jervis (accepted) .....	279 13 0

## TENDERS

For the erection of a Scotch Presbyterian Church, St. John's Wood; Mr. H. Mawley, architect.

John Morris .....	£2,397
Wm. Patten .....	2,279
James Morris .....	2,269
J. and C. L'Anson .....	1,885
Geo. Mansfield and Son .....	1,876

For St. James's Baths and Washhouses, Westminster; Mr. P. F. Baly, engineer.

Jeffrey .....	£8,570
Paul .....	8,700
Walker and Soaper .....	8,469
Tollock and M'Lennan .....	8,468
Higgs .....	8,470
Piper .....	8,237
Winstland and Holland .....	8,194
Hayward and Nixon .....	6,000
Curtis .....	7,984
H. W. Cooper .....	7,922
Sanders and Woolcott .....	7,892
Myers .....	7,847
T. Burton .....	7,839
Trego .....	7,287

For Chertsey Union Workhouse additions; Mr. John Baling, architect.

	No. 1. Building.	No. 2. Draughts.
Seal and Jackson, Chelsea .....	£1,876 0 0	433 0 0
Cooper and Davis, Southwark .....	1,760 0 0	475 0 0
Pollard and Symonds, Guildford .....	1,697 0 0	517 0 0
Richards, Paddington .....	1,638 8 0	332 0 0
H. and C. Clark, Reading .....	1,656 0 0	413 0 0
James Lee, Guildford .....	1,653 14 8	383 10 2
Thomas Lucas, Chertsey .....	1,610 0 0	400 0 0
James Davis, Camberwell .....	1,592 0 0	386 0 0
Thomas Lucas, Chertsey .....	1,590 0 0	385 0 0
Oades and son, Egham .....	1,588 0 0	332 0 0
Ellis Galford .....	1,584 0 0	498 15 0
James Smith, Guildford .....	1,576 15 0	480 11 0
Joseph Taylor, Sudbury .....	1,473 0 0	429 0 0
Henry Boral, Guildford .....	1,437 0 0	485 0 0
Robert Hunt, Chertsey .....	1,435 0 0*	

\* Accepted.

## SCIENTIFIC MEETINGS

Held during the ensuing week.

MONDAY, June 24.—Institute of Architects, 8 p.m.  
FRIDAY, June 29.—Architectural Association, 8 p.m.











# The Builder.

No. CCCLXXXVI.

SATURDAY, JUNE 29, 1850.

**M**AST week, as on former occasions, we dropped down amongst the members of the Archaeological Institute during their congress, that we might gather from their sayings and doings such matter for the delectation of our readers as seemed to promise it. Oxford, the scene of action, is itself a thing pleasant to see; the weather, too, was glorious, and the old colleges and their gardens were never looked at under a clearer air. Magdalen Tower, the Ratcliffe Library, the Church of St. Peter in the East, with its crypt sometimes called Saxon, the Schools where the "Orders" were early introduced, St. Mary's Spire, &c., &c., "hurtle into view, of interest wonderful."

We brought away a couple of memorials, namely, the north transept of Merton Chapel and part of the Old School at Magdalen.\* At Merton the stone is much decayed, and this is unfortunately the case with every building in Oxford. The canopies of the niches have fallen off. The cornice over the door contains heads of men, animals, and foliage. The north side of the chancel, partly seen in our view, has boldly projecting buttresses, with large gargoyles. The tracery of the windows varied in nearly all. The great east window, decorated in style, is the finest in Oxford. Within some works are going on; and a portion of the roof has been painted as a specimen card. The date of that portion of the building which we show is 1424, in which year the chapel was re-dedicated.

The temporary Museum of the Institute was formed in the Taylor and Randolph buildings (illustrated by us in a previous column), and included some interesting embroidery, vestments, and carving, but it was not so rich as it has been on some previous occasions. The colleges retained their plate and curiosities, and exhibited them in their own place at set times. At New College the crozier of William of Wykeham, with its elaborate canopy work and enamelled ornaments, received particular attention.

At the introductory meeting on the 18th, the principal feature was a learned discourse on the study of Archaeology by Mr. C. Newman, wherein, as he said, he endeavoured to present a sketch of the nature and value of oral, written, and monumental evidence, and to show that it was the characteristic of archaeological societies to give corporate strength to individuals, and thus become historians of national manners and antiquities. These were the great functions which they had undertaken, and he urged upon them the necessity of carrying them out, and not to forget that archaeology only advanced them one stage, supplied one chapter in the whole history of human culture, one link in the chain which held them together in bonds of attachment, but, if followed out, would enable them to span the abyss of time.

(The Rev. Vaughan Thomas, Mr. Hallam, and Lord Northampton (the latter fresh from Egypt to the banks of the Isis) spoke after-

wards. In the evening the Principal of Brasenose read a paper on

THE UNIVERSITY CHURCH OF ST. MARY, which all who have visited Oxford know by its beautiful spire and its incongruous though picturesque south porch, with twisted columns, in the High-street. The spire, by the way, has a scaffolding round it, and the upper part of it is being rebuilt. Some of the pinnacles at the foot of it, too, have been restored, or, perhaps, as people differ in opinion as to the propriety of some of the work done, we should say repaired. There was disagreement with the architect who was at first engaged upon it, and now it is in the hands of Mr. Buckler.

The foundation of St. Mary's has been referred to King Alfred. Let this be as it may, the church is mentioned in the Domesday Survey. The paper in question quoted a number of curious letters for funds, addressed to various persons in the early part of the reign of Henry VII., when, after it had been for some time in a ruinous condition, the whole edifice, except the tower and spire, and a small portion eastward of the tower, were entirely rebuilt as it now stands, by means of funds supplied by members of the university, or obtained by the assistance of their friends.

The rebuilding of the church was completed in 1492, the chancel having been erected some years earlier by, or at least at the cost of, Walter Lyhart, or Hart, Provost of Oriel College, and afterwards Bishop of Norwich, who died in 1472.

"Of the architect of the nave and aisles," said the reader, "I know not that we may speak with certainty. The President of Trinity College asserts that Sir Reginald Bray, who was High Steward of the University from 1494 to 1509, was the author of this work. Something may also be ascribed to the well-known reputation of Sir Reginald Bray for skill in architecture. Whether he were the architect of our church or not, we may at least say that the credit of the work would detract nothing from the fame which he has justly acquired by the splendid memorials of his taste and skill to be seen at Malvern and at Windsor.

But whoever the architect of the new building may have been, the church has not come down to our times in the state in which he left it. A few years after its completion in 1492 it suffered severely from a storm, the effects of which have never yet been fully repaired.

All the allusions to this event that I have been able to discover are little more than repetitions of a note by Leland.

The time at which the reparation of these injuries was undertaken may be fixed with greater certainty. Dr. Plot, in his 'Natural History of Oxfordshire,' published in 1677, observes that 'there are many lofty spires about the country as well as city, built all of freestone, and of exquisite workmanship, such as those of Bampton, Witney, Burford, Bloxham, Spilsbury, Kidlington, &c., but that which excels all the rest is the spire of St. Mary's in Oxford, the University Church, the battlements whereof were repaired, and thus set thick with pinnacles as it now stands by Dr. King, then Dean of Christ Church, and Vice-Chancellor of the University,—afterwards Bishop of London.'

Dr. King was Vice-Chancellor of the University from 1607 to 1610, and the architectural style of the pinnacles now standing on the body and chancel of the church, as well as of those which have been recently removed from the base of the spire, corresponds so closely with the work of that period, as to leave no difficulty in the way of accepting Dr. Plot's representation.

The material employed for the construction of the pinnacles put up in the time of Dr. King, being the perishable stone of this neighbourhood, had become much decayed, in the course of two centuries and a half which have passed since their erection. This, in addition to many serious defects in the masonry of the upper portion of the tower, having rendered extensive repairs absolutely necessary, the charge of effecting the required operations has,

as of old, been undertaken by the University, and it is hoped that in a few months the whole will be completed.

It is evident that the present church, with its noble dimensions and symmetrical design, owes its existence to the necessity for rebuilding the ancient structure. The progress of enlargement by partial re-edification may be traced with considerable distinctness, the tower and spire presenting architecture of more early date than is attributable to any other portion of the edifice. The plan of the ancient edifice which preceded the present church cannot now be ascertained, but the remains of large windows on the east and west sides of the tower evidently show that it was originally intended to stand clear on three out of its four sides."

The south porch, to which we have already alluded, was built in 1637, at a cost of 200*l.*, principally employed in producing ornaments that do not contrast favourably with the delicate fan groining, which is all that remains of the ancient design.

Amongst the papers read on Friday was an interesting biographical notice, by Mr. Britton, of John Carter, the stern champion of Gothic architecture at a time when it had fewer admirers than now. We give the paper in full on another page. At the close of it, Mr. Britton justly complained of the want of a Metropolitan Museum for the preservation of national antiquities. In reply, Lord Northampton, first remarking on the long and useful life of the author of the "Cathedral Antiquities," assured the meeting that the subject had occupied the attention of the trustees of the British Museum, and was still under consideration. Something had been done, and more would follow.

At the same sitting the Rev. J. L. Petit read an account of *Sherborne Church, Dorsetshire*, stating as his excuse for selecting so distant an object, "that as this fine church is now undergoing restoration, it is invested with a more immediate interest, and it is right to direct to it the attention of the antiquary, both that he may notice any evidences of its history developed by the process, and also that he may be enabled to offer such suggestions as may strike him as to retaining or changing any features existing at the time when the work was taken in hand. I say this, as the beautiful south porch has been entirely pulled down, and though it appears that the arcades in the lower part will be reconstructed, as far as possible, with the same individual stones, which are ranged in their order on the grass, still, from a drawing I saw of the proposed restorations, it seems to be the intention of the architect to give the upper part a high-pitched gable and pinnacles, with Norman details, instead of the horizontal parapet, which is familiar to all who are well acquainted with engravings of the building, and which harmonized so well with its general lines: with the exception of this porch, the character of the church, externally, is a not very early Perpendicular, the uniformity of which is owing to its almost complete re-erection shortly after a fire, which happened in the reign of Henry VI. in consequence of a dispute between the monks and the townspeople."

The whole internal length of this church from the western wall to the door of the lady chapel is 200 feet: the height of the choir vaulting is 54 ft. 8 in.: the width of the nave and aisles is 60 ft. 10 in. The roofs are very fine, and in connection with these Mr. Petit offered the following observations on

## THE CONSTRUCTION OF VAULTS.

If two equal semi-cylindrical vaults, with springs of equal height, cut each other at right

\* See pp. 306 and 307.



angles, the diagonal arches which mark their intersection will be each the half of an ellipse, in a vertical plane inclined to the walls of the building at an angle of 45 degrees, and having its axis major, which will be horizontal, to its axis minor, which will be vertical, in the ratio of  $\sqrt{2} : 1$ .\* If any other ellipse be used for this diagonal arch, or an ellipse whose plane inclines to that of the side walls in any other angle than that of 45 degrees, either the transverse arch, or that of the cellular vault, or both, must be elliptical, instead of semicircular; that is, if the springs are of the same height, and the ridges horizontal. This will be the case when the vaulting cells are narrower than the main vault. If the transverse arch be a circle, and the plane of the diagonal ellipse be inclined to the walls at an angle greater than 45 degrees, the arch of the cell will be half an ellipse whose axis major is vertical, or whose curvature increases from the spring to the vertex. If the cells have a semicircular arch, the transverse arch will be half an ellipse, but its axis minor will be vertical, or the curvature least, at and near the vertex. This, if I remember, is the case at Laach Abbey, in Germany; also in the crypts at Gloucester. If, now, the ridge of the vault be not taken exactly at the highest part of the circle, but at a distance from it, so as to form a pointed arched vault, the ridge of both the main and cellular vaults being kept horizontal, and at right angles to each other, the rule is not altered, but if the plane of the diagonal ellipse be inclined in any other angle than that of 45 degrees to the walls, the transverse arch, or that of the cellular vault, or both, must consist of elliptical instead of circular segments; and if the curvature increase towards the vertex of the arch, its form will not be so graceful as one in which the curvature diminishes in ascending. The exigencies therefore of unequal vaults, though they may have given rise to pointed arches, still demanded many more modifications of line and surface. The simple introduction of a pointed arch would not of itself have solved the difficulty. Either elliptical, transverse, or cellular arches, or inclination of the ridges, or elevation of the springs, or depression of the vertex, or some variation of surface, must have been necessary. In some early English works I think the elliptical form of the cellular arch is very apparent, and not graceful.

Now this may account for a variety which occurs in Decorated or Early Perpendicular work, where the cellular vault branches from the principal one at a point lower than the vertex, thus leaving a portion of the barrel roof unbroken. By this means diagonal arches, or rather portions of them, which shall satisfy the conditions of both the form and inclination of the ellipse belonging to arches of circular lines, will be obtained; and the cellular arch, though smaller than the transverse, will be equally made up of pure circular arcs. We have this kind of vaulting in the nave of Winchester Cathedral, and of Tewkesbury Church; in each of which none of the numerous ribs and bosses which cover a comparatively simple surface, will be found to be without meaning. But a still farther advance may be made. Let a point be taken in the ridge of the cellular vault, and joined with its spring by a portion of an arch, and also draw an arch from the spring to the point in the ridge of the main vault which corresponds with that of the cellular vault, that is, lying in the same vertical plane, and cut away the angle of the original roof between the two, so as to form an inclined ridge between the vertex of the principal vault and the point taken in the ridge of the cellular one, and an oblique face of roof, between the main and the cellular vaults. This forms a beautiful vault, which occurs (not to name other instances) in the transepts of Tewkesbury Church, in Gloucestershire; and you will observe, it may be constructed to satisfy the following conditions:—

That the ridge of the principal, or longitudinal vault, shall be perfectly horizontal;

That the transverse arches of both the principal and cellular vaults shall consist of simple circular segments;

That all the edges between different surfaces

\* It is essential to the beauty of a roof that the diagonals should have no double curvature, nor lie in a plane inclined to the horizon, but be portions of true upright arches.

shall lie in vertical planes, forming portions of true arches;

And, that all the surfaces shall be developable—a condition favourable, though not essential, to the beauty of the roof, and, I should suppose, convenient in its construction.

The number of oblique faces may be multiplied, even without the introduction of any other kind of surface, so long as we preserve unbroken the portion of the principal vault which is left in the foregoing construction.

But if we wish to infringe upon this by an oblique face, and yet keep the main ridge horizontal, we must introduce another description of surfaces, which shall neither correspond with the principal or cellular vaults nor with the oblique vaulting surfaces, but connect the latter with each other and with the former. I shall not attempt to enter into an investigation of their various forms or inclinations, but merely observe that they will mostly be found to be flatter, or less inclined to the horizon, than the surfaces of the original simple vault which they replace.

Though the oblique surface was probably first introduced for the purpose of connecting the ridges of two vaults unequal in height and span, the beauty of the effect thus obtained led to its use where this inequality did not exist, and it may perhaps be found to have facilitated the combination of vaults of different span, but equal height, without the abandonment of circular lines in the arch.

#### OXFORD CASTLE

Afforded the Rev. Mr. Hartsborne a subject. The keep still remains; it is singular from its rude construction and the amount to which the walls of it *batter*. The absence of mention of any military building here in "Domesday Survey," leads to the inference that it was erected after the date of that book. There was a castle here when the Empress Matilda was besieged by King Stephen in 1142. There is no reason to doubt that the earliest parts of the structure remaining were then in existence. Judging, too, from those general inductions architectural observers have laid down as a guide for determining dates, there is enough to be seen in that part of the building erroneously called "Maud's Chapel," to show that it belongs to the end of the eleventh or very beginning of the twelfth century, between 1087 and 1135. The mound is much earlier, and before the Saxon period, but the remains within it belong to the time of Henry the Third; so that here may be seen what preceded the Mercians, and the latest remains erected by the Plantagenets. The Crypt, commonly called Maud's Chapel, is a most interesting example of early Norman work. The vaulting is bold, and the vousoirs are carefully worked with stools. The capitals of the piers are highly curious. It was in all probability the crypt under the great hall.

"During the absence of the court, the castle was left in the custody of the sheriff, who superintended all the necessary works, and so slightly were parts of it built that there are precepts almost annually recurring, which show that repairs were essential very soon after the buildings themselves were first raised. This slight and defective mode of construction was not, however, peculiar to Oxford, but must be rather regarded as a characteristic of the military buildings of the period: all of them exhibit sufficient evidence of the negligent way in which castles were built. And if the proof were not too frequently before the eyes, a glance over some of the rotulets of the Great Roll of the Pipe would confirm the assertion, since it tells us that even the Castle of Oxford, which was commenced in (12 Hen. II.) 1166, and finished in 1173, substantial and perfect as it now looks, wanted reparation within the first fifteen years."

Professor Willis's Discourse on the Architectural History of Christ Church Cathedral was given, partly in the Sheldonian Theatre and partly in the building. It was a very pleasant narration, delivered with that clearness and sparkle which characterize the professor; but to those who had not heard his previous essays, Lord Northampton's statement, made at the close, that not merely the popularity of the Institute, but its very exist-

ence, was owing to Mr. Willis's papers, must have sounded oddly.

He said very frankly at starting that the cathedral was unworthy of the city, and a disgrace to the University. We may briefly remind our readers that a convent was endowed here early in the eighth century by Didan, whose daughter Frideswide played a prominent part. It was probably dedicated to her in 1280, when her relics were removed from one part of the building to another. None of the Saxon work remains: the earliest portions belong to the Norman period. Some had thought, Mr. Willis said, that the lower pier arches belong to an earlier construction, but by taking off the lead covering of the aisles, he was enabled to prove that these upper and lower arches, bizarre as the arrangement was, were of the same period. The chapel on the north side of the choir, usually called Lady Montacute's Chapel, he considered was the Lady Chapel, a supposition strengthened by the fact that one of the bosses displayed a bunch of roses and another consisted of lily leaves, both emblems of the Virgin Mary. Relative to the conversion of monasteries into colleges, the lecturer said St. John's at Cambridge was an early instance. The change was quietly effected at Magdalen, Oxford, in 1456. Jesus College, Cambridge, was founded in the same way in 1496. Christ Church, Oxford, of which he was speaking, was founded on the ruins of several monasteries, including that of St. Frideswide. He concluded by quoting a passage from Wood, asserting the danger of following the fashion of the time in making restorations. In Salisbury Cathedral, the lecturer said, every tomb had been treated as a piece of furniture, cleaned and altered.

The Chapter House at Christ Church is an exceedingly interesting early English apartment, at present divided and mis-fitted-up. It is hoped that it will one day be set right again. We wanted to say something of a pleasant excursion or two, but cannot now afford more space.

#### ON THE LIFE, PROFESSIONAL WORKS, WRITINGS, AND CHARACTER OF JOHN CARTER, F.S.A. AND DRAUGHTSMAN.

THAT the present generation of Archaeologists is deeply indebted to John Carter cannot be disputed or denied. Like his predecessors, Camden, Aubrey, Dugdale, Stukeley and others, he did his best, in his peculiar sphere, to lay the foundation for that branch of science and art which he loved to cultivate; and but for his labours we should have been ignorant of many interesting ancient objects which since his time have been entirely destroyed. It has always been a gratification to me to acknowledge obligations to by-gone labourers in the Topographical and Archaeological vineyard. To Aubrey, who was a native of the parish which gave me birth, I have devoted a goodly sized quarto volume, in which I have endeavoured to vindicate his memory from the captious censures of his ungenerous and unjust rival, Anthony a'Wood, as well as from the unfair and sneering criticisms of more recent writers, who have betrayed their ignorance of his real merits. Possessing a large mass of manuscript journals, letters, and papers, by Dr. Stukeley I have long meditated on and hoped to produce such a memoir of that zealous, industrious, and learned antiquary, as would at once do him justice, and form a valuable contribution to our biographic annals. And I may venture to say, from a personal acquaintance of some years with the late John Carter, from having studied all his published works, and from repeated examinations of a large collection of his sketches and drawings (in my possession), that I feel qualified to describe his personal characteristics, as well as to appre-



ciate his merits as an artist, an author, and a member of society.

John Carter is best known by his published works, which, however, owing to their large size and costly nature, and also from the captious disposition of their author, had but a limited circulation. In 1780 he commenced a series of etchings, in folio, illustrative of "Ancient Sculpture and Painting," which he published in numbers, periodically, till the year 1794. In 1795 he commenced a similar series of plates of "Ancient Architecture," of which, in 1816, he had completed twenty-eight numbers; and on these two works his reputation as a draughtsman and engraver mainly rests.

As draughtsman to the Society of Antiquaries he executed a series of illustrations of Cathedrals and other Ecclesiastical Edifices, which were engraved by, and under the direction of James Basire, and published by the Society between the years 1795 and 1813. These comprised St. Stephen's Chapel, Westminster (1795); Exeter Cathedral (1797); Bath Abbey Church (1798); Durham Cathedral (1801); Gloucester Cathedral (1807); and St. Alban's Abbey Church (1810). Seven drawings of Wells Cathedral, now exhibited, were prepared by the same artist for a volume in continuation of this series, but these have never been engraved. They are characterised by the same fidelity and spirit as those in the published volumes, and possess a peculiar degree of interest from the singularity of the edifice and its adjuncts. In addition to the above-mentioned publications Carter produced some minor works which will be hereafter noticed; and he was a constant correspondent in the *Gentleman's Magazine* for nearly twenty years.

Carter was the son of a statutory or mason, and was born in Piccadilly, London, on the 22nd of June, 1748, and lived and died a bachelor. From boyhood to old age he was professionally an artist; but rather an antiquarian and architectural draughtsman than a practical architect, though he assumed the latter title in his communications to the *Gentleman's Magazine*. He was never artful to any profession, but left to study and practise drawing as fancy and accidental circumstances prompted. The self-instructed are usually desultory and eccentric, and such especially was the artist now under notice. In person, manners, and opinions, he manifested many singularities. If my late friend, Isaac D'Israeli, had included Carter's correspondence and peculiarities in his interesting work on the "Quarrels of Authors," he would have delineated a character full of irritability and suspicion; often wielding his pen in censure and bitter sarcasm, as well as in useful and accurate description; and again, in the excess of his Quixotic zeal, attacking the phantoms as well as the realities of "Architectural Innovation." Such a picture would have strikingly illustrated the observation of Mr. D'Israeli, that an author is "a human being who possesses at once two sorts of lives—the intellectual and the vulgar: in his books we trace the history of his mind, and in his actions those of human nature."\* The writer of a short notice of Carter, in the *Gentleman's Magazine*,† 1817, judiciously observes that "his valuable representations of sculpture and painting, and of the ancient architecture of England, have preserved the forms of buildings and decorations long since lost, and of many which may be hereafter demolished. These extensive and useful works were wholly executed by Mr. Carter in a free and masterly manner, with character, boldness, and a feeling peculiar to those who know the utility of every line they draw. In defence of an old relic he would brave the keenest war that pen could wage: he was never intimidated by threats, or diverted from his object by ridicule; and as he gave no quarter, so he expected and received none. But the severity and sarcasm which too often marked his writings are not to be justified. He would repeatedly declare himself 'a coward in everything but the good old cause,' which I sincerely believe; for exclusively of this he had no fixed determination. Nervous to an excessive degree, he would fancy the greatest consequences to have arisen from the most casual and trifling cause; and a dispute with a casual has brought on a

fever. To causes like this he attributed the illness which attended the latter years of his life."

Soon after his father's death he was in the employ of Mr. John Dixon, surveyor and mason; and afterwards of Mr. Henry Holland, bricklayer, in whose office he obtained some insight into the practice of building, and also in drawing architectural plans and sections. He incidentally relates an anecdote referring to this early period, as follows:—"At the funeral of the late Lord Bath, about the year 1765, I being then some 16 or 17, attended to see the ceremony, which was by torchlight, in the Abbey church, at Westminster, opposite the tomb of Edward I. in the aisle below. I stood with many others on the tomb. The crowd and confusion was so great, that several gentlemen, thinking it necessary for their own and the company's safety to defend the stairs into the chapel of the Confessor, not only drew their swords, but tore down the oak canopy above Edward's memorial to convert it into weapons: and in such state it now remains."

Being at Windsor in 1764, he made a coloured drawing of part of one of the old towers of that famed royal fortress; and from this circumstance,—with the impression made on his young and ardent mind by the imposing, picturesque, and interesting buildings of that castle,—we may probably date the birth of that enthusiastic devotion to ancient architecture which afterwards grew up with him to vigorous maturity. At the very commencement of his professional career Carter seems to have resolved on preserving all his original sketches, which ultimately extended to a large and curious collection. This series, now in my possession, fills thirty-seven folio volumes, and furnishes a sort of graphic *Auto-Biography*, or index to his travels, studies, connections, employments, and peculiarities; for, besides pen and pencil sketches of buildings, monuments, stained glass, and antiquities of every description, the collection is interspersed with letters, bills, and memoranda of different kinds. In this series are the original sketches from which the numerous plates already mentioned were afterwards etched and published, as well as many hundreds which he executed for distinguished lovers of archaeology. One of his principal patrons was the late Richard Gough, who advised and instructed him with reference to the various objects likely to come under his notice in his journeys, and many of whose letters are preserved in this collection. Here, too, are the original sketches from which he prepared an elaborate set of drawings of YORK CATHEDRAL, for Sir Mark Masterman Sykes, bart.; but as the contract was not concluded when the artist died, they were sold at the auction of his property for 300 guineas.\*

It is evident from his sketches that Carter was industriously employed for more than forty years in travelling into almost every county in England to examine, sketch, and measure those venerable edifices which were so well calculated to sustain and reward his enthusiasm.† The series is, indeed, a worthy monument of his persevering industry; of which I cannot better convey an idea than by stating that his works on "Sculpture and Painting," and "Ancient Architecture," contain 236 folio plates, all etched by himself. The Society of Antiquaries' series of Cathedrals, &c. comprise more than eighty large plates from his drawings.

From 1774 to 1778 Carter was engaged in making designs, or "inventions," as they are called, for publication in a periodical called *The Builders' Magazine*.

In 1780, and again in 1791, Mr. Carter was consulted by the Dean and Chapter of Peterborough respecting intended alterations of the *organ-screen and choir of the cathedral*; and it appears that the organ-screen was finished after his drawings.

In 1780 he commenced his first great work, "Ancient Sculpture and Painting," which he states he was induced to embark in from the

niggardly conduct of publishers, and especially of one who gave him only a guinea for a drawing which he valued at 5*l.* or 6*l.* The extent and importance of this publication, which continued, periodically, during fourteen years, have been already adverted to. The letter-press descriptions were written by himself; but a number of valuable essays were contributed by his better-educated antiquarian friends and patrons, Dr. Milner, Mr. Douce, &c.

In 1786, whilst the above work was in progress, Carter resorted to the singular expedient of printing and publishing a catalogue of his principal sketches and drawings, accompanying the same with small etchings of the principal subjects, in size no larger than 4½ inches by 3½, but characterised by a remarkable degree of breadth, clearness, and effect. These "Etchings of Ancient Buildings," 120 in number, were issued in six miniature volumes, at periodical intervals between 1786 and 1793, each volume containing twenty prints, and a list of other drawings (nearly 600 in all), notes being added with the names of gentlemen for whom copies or finished studies had been made by him.

On the completion of the "Sculpture and Painting" he announced his "Specimens of Ancient Architecture," from the most remote period to the sixteenth century; showing the progressive state of that science, both in the circular and in the pointed arch, commonly known by the opprobrious term Gothic. "The principal design of this work," he states, "will be confined to the pointed arch, or the Gothic, in an attempt to reduce that noble style to a practical system of workmanship,—a science at this day so little understood." After a lapse of more than twenty years, only twenty-eight numbers were published (bringing down his series of illustrations to the time of Edward the Third). His mortified feelings at the result are strikingly exemplified in a letter to the *Gentleman's Magazine*, January, 1816: "The ancient architecture of England being at a stand, for want of the usual aid,—liberality of subscribers (some dead, some tired of collecting, &c.),—the author proposes, out of respect to the subscribers, and a peculiar satisfaction to himself, to meet them at any time or place, and there cast into the flames all the remaining stock, &c., of this work, and of that on the ancient 'Sculpture and Painting.'"

In 1795, simultaneously with the commencement of the "Ancient Architecture," Carter's illustrations of St. Stephen's Chapel, Westminster, were engraved for the Society of Antiquaries; and that unwieldy folio was followed in the next fifteen years by the corresponding volumes already mentioned. For all of these, Carter wrote the "Descriptions of the Plates," the historical matter being contributed by more learned members of the society.

Carter's correspondence with the *Gentleman's Magazine* does not appear to have commenced until the year 1798; but from that time until his death he was a constant contributor to the pages of that venerable and valuable periodical. His principal communications were a series of essays under the title of "Pursuits of Architectural Innovation, by an Architect," and their professed object was to expose to public indignation, and to express the contempt which he felt for, every innovator on the genuine characteristics of ancient architecture, and likewise for every person, whether architect, builder, or amateur, who dared to mutilate the forms or features of our time-honoured and interesting architectural remains. In his third letter (November, 1798) he exclaims—"I presume to profess myself a real antiquary, and in conformity to that character I venerate the history of my country; I venerate the names of the great, the warlike, and the good of former times; I venerate those astonishing, those magnificent fabrics, those enchanting monumental memorials which they have left behind them as proofs of their enlightened genius and skill! Thus far as an antiquary; but as an artist, who from my earliest years have been in the habit of constantly admiring their sublime performances, in critically surveying and minutely copying them, I cannot but feel in the most sensible degree any innovations made in their arrangement, or any destruction made in their several parts. And however weak my efforts may be in the task I have undertaken,—to point out to the public 'The Pursuits of Architectural Innovation,' and

\* They are described in the catalogue as "twenty-four drawings, with twelve sheets of MS. description, of uniform size, on the largest elephant paper."

† Mr. Buckler says of Carter's sketches,—"Some of them are admirably executed; and I have often preferred their boldness and character to the more elaborate copy."

—Memoir, *Gentleman's Magazine*, 1817.

‡ Sir John Soane informed me that some of the adventures and peculiarities of our antiquary were described in a pamphlet entitled, "The Life of John Randle, artist."

\* "Quarrels of Authors," preface, p. vi.  
† Mr. J. C. Buckler.



to stay its iron hand,—yet I am confident my efforts will not be entirely in vain.”

To this creed and to this resolution he pertinaciously adhered. The magazine referred to affords abundant proof that it involved him in many public and private disputes; in much wordy warfare; in crimination and recrimination; for his zeal frequently carried him beyond the bounds of moderation, and his letters are replete with personality and prejudice. Amongst the knights who, either masked or with vizor up, entered the list against our renowned Quixote, were James Wyatt, John Sidney Hawkins, Dr. Vincent, the Dean of Westminster, and Thomas Gayer, the mason who conducted the restoration of Henry the Seventh's Chapel.

The alterations in the cathedrals of Durham, Salisbury, Lichfield, and York, in St. Stephen's Chapel, and more especially in Westminster Abbey Church and Henry the Seventh's Chapel, were subjects on which “the architect” made his chief strictures; and he bitterly complained of being excluded from some of these edifices when new works were in progress. He was both severe and sarcastic on the wanton destruction of many fine and interesting specimens of ancient art; and on the incongruity of their pretended restorations he especially reproached Wyatt and others, as utterly ignorant of the elements and the spirit of ancient ecclesiastical architecture.\*

When, on one occasion, his qualifications were impeached by a correspondent of the magazine, he strongly, but justly, and without improper arrogance, thus asserted his pretensions:—“It has been the business of my life to lay in a stock of experience from our antiquities by constant study, and by delineatory imitations. I have traced the rise and progress of architecture among us from the Ancient Britons to the reigns of the Tudors; discovered the origin of the Pointed Arch system; distinguished and parcelled out the various modes that system has run into, from William the First to Henry the Eighth; descanted on every occasion on the unrivalled excellence of this art, even from its first appearance to its total disuse in the sixteenth century; witnessed with every degree of mortification a fanatic revival of these orders of architecture in mine own day, the ridiculous turn of which I have always endeavoured to expose, as being the refuse of taste, and at the same time to convince all that with our ancestors taste alone was permanent. I have raised up a hue and cry against those who would destroy, and those who have destroyed our antiquities, and last, though not least of my struggles, I was the first who scouted the nickname *Gothic*, given to our ancient architecture by the *Wreaneans*, in Charles the Second's reign, and continued down, with unabated obloquy, to the present year of our most Gracious Sovereign, George the Third.”

In May 1816, only a year before his death, the Rev. Archdeacon Owen, of Shrewsbury, came forward in the *Gentleman's Magazine* as the writer of a valuable, because disinterested, testimony to Carter's merits, with particular reference to the abandonment of his “Ancient Architecture,” which had been recently announced. “It is not too much,” says that learned and amiable author, “to predict that with Mr. Carter will perish all hopes of a full completion of his subject, for no artist now living or likely to arise will be able to add the abundant matter still wanting to perfect his intentions.” Carter was fully sensible of, and warmly acknowledged, this well-merited and friendly eulogy. “I do not weary in the cause,” he wrote; “my zeal increases with my years; and I seek no other repose but what is sufficient to render me competent to follow my employ with the returning day. A continued flow of health, and a renewal, within these two years, of my early sight (the greatest of all earthly blessings) are granted to me.”

He died on the 8th of September, 1817, in the seventieth year of his age. Although he had suffered much in the winter of 1816-17 from diarrhoea, dyspepsia, and dropsy, he does not appear to have had any relative, confidential friend, or even hired nurse in his house during that illness. “He continually represented himself as a solitary being, existing in life

\* It is in contemplation to reprint Carter's essays in the *Gentleman's Magazine* in a collected form.

without any natural connections from whom he could expect assistance when age and infirmity came upon him; and in his last illness he had no person with him but a common servant.”

“He was confined to his bed hardly one day, having been in his work-room the morning of the day previous to his dissolution: he was there taken ill, and suffered many hours' excruciating pain, after the subsiding of which he lay for a considerable time in a quiescent state, and expired the next day almost imperceptibly.” His remains were removed to the churchyard of Hampstead, and a tombstone was raised to his memory by Mr. Leathes and Mr. Hoare, his executors. Sir Henry C. Englefield, Bart., had been named by Carter to act with these gentlemen, but he declined.

In February, 1818, Carter's books, drawings, and other miscellaneous property, were sold by auction by Mr. Sotheby. The copyright of his six small volumes of “Views of Ancient Buildings” was sold for 56*l.* 16*s.*; that of the “Sculpture and Painting” for 330*l.* 15*s.*; and I purchased the stock and copper-plates of the “Ancient Architecture of England” for 288*l.* 15*s.*, for my esteemed friend Mr. John Broadley. They were again disposed of at Mr. Broadley's sale to Mr. Henry G. Bohn at a greatly reduced price. That enterprising bookseller, who had also acquired the “Sculpture and Painting,” published new and corrected editions of both works in the years 1837 and 1838,—the “Ancient Architecture” under my superintendence, with notes and copious index, and the “Sculpture and Painting” under that of the late Sir Samuel R. Meyrick, and other antiquaries.

The property sold on this occasion comprised a few books, some miscellaneous antiquities, fragments of stained glass, several suits of armour, about thirty lots of drawings by himself, his drawings of York Cathedral (sold, as already mentioned, for 300 guineas), and his collection of sketches, in thirty-seven volumes, which produced 173*l.* 5*s.*\*

On one occasion I spent an evening with John Carter to witness an exhibition of his model theatre, with its pasteboard performers, and to hear his own personal reading of one of his dramas. Six small lamps were employed to light and give effect to his stage; but one candle sufficed for his tea-table. Every thing around him was gloom, poverty, and penuriousness, calculated to depress the heart and to induce a regret for human infirmity, and that misanthropy which is usually created by a morbid temperament. “Architectural Innovations,” public apathy, and the want of patronage for his publications engrossed the whole of his thoughts and comments. He was then working on a series of drawings of Malmesbury Abbey Church for Sir Richard Hoare, and it was a letter from that worthy baronet which gained me such a favourable reception from the captious antiquary. I may add that I had not then commenced my “Architectural Antiquities,” or I should not have been admitted as a guest at his domicile.

His servant at this time was a girl about sixteen years of age; and I was informed the following year at Malmesbury, that she occasionally accompanied him on his sketching excursions, dressed in boy's clothes.

Amongst Carter's eccentricities was the manner of laying in his weekly provisions. Accompanied by his servant, he went at a late hour every Saturday night to Newport Market, to purchase meat, &c., at the lowest price. His purchases were limited to two pounds and a-half of the neck of mutton, a remnant of bacon, with potatoes, an ounce of tea, a pound of brown sugar, &c., which were intended to feed the two for the following week; for both

\* Some dramatic and miscellaneous manuscripts by J. Jameson, Carter's maternal grandfather, were also part of the collection, and from that individual the artist probably derived his strong partiality for theatrical pursuits. He altered and adapted for representation five plays by the older dramatists, the manuscripts of which were sold by Sotheby for very low prices; and besides these there were two other plays, one called “The Apprentice,” a mock Tragedy, by John Carter, 1770; and the other “The Barbers,” a mock heroic Tragedy, by John Carter and John Eaton, 1789. Our antiquary was also a great musical amateur, and had written and composed eight different operas, the manuscripts of which shared the fate of his general collection. Two of these were called “Dramatic Romances, founded on historic Facts of the fourteenth and fifteenth Centuries;” and to each of them the author had, with great labour and expense, constructed a stage with prospectum and highly-finished drawings, representing the various scenes.

in food and clothing he was truly parsimonious. He was a large holder of Government Life Annuities, and in the July previous to his decease in September, he transferred 2,000*l.* Bank Stock to the Commissioners, for a further purchase, upon which the executors received only one quarter's dividend. In irritable temperament, impatience of contradiction, eccentric and penurious habits, Carter resembled the Royal Academicians, James Barry and James Northcote. Indeed, old bachelor-ship is unnatural and irrational, and is too generally superinduced by infirmity of temper, which, as years increase, occasions confirmed moroseness and diseased mind. The failings of John Carter had their origin in this cause; and in his want of better education; but, with all his peculiarities, he deserves the warmest gratitude of the present race of archaeologists, as an indefatigable and able draughtsman, as a determined enemy to the destruction of antiquarian relics, and as the first to attempt a classification of our national architecture. JOHN BRITTON.

#### SOME REMARKS ON TERRA COTTA AND ARTIFICIAL STONE.\*

It is rather remarkable that the revival of the manufacture of terra cotta, or more properly of artificial stone, in England, should have been effected by a lady. About sixty years ago, Miss Coode, from Lyme Regis, possessing a large share of scientific knowledge and energy, embarked in a small manufactory of artificial stone, in Lambeth, which, by her perseverance and good management, eventually attained a considerable degree of celebrity. To this original establishment in Lambeth the merit is due of greatly improving the composition of the material, and the processes by which its permanent character was attained. The proprietor had also sufficient enterprise and discrimination to avail herself of the talents of some distinguished artists, and thus produced works of a superior character, which may fairly vie with those of the chisel. The bas-relief in the pediment over the western portico at Greenwich Hospital, representing the Death of Nelson, was designed by West, and executed by Bacon and Panzetta, who also modelled many other distinguished works. The rood-screen or loft at St. George's Chapel, Windsor, was executed in the same material.

With respect to modern instances of the use of artificial stone, St. Pancras Church may be considered as one of the most important; the greater part of the ornamental details being formed of this material, at the large outlay of 5,400*l.* The work was executed by Mr. Rossi, from the designs of Mr. Inwood, the architect; and according to present appearances, the material promises to be very durable. About the same time extensive bas-reliefs, colossal figures, and other decorations, executed in the same material, were placed on the front of the Custom-house, London, but these specimens have been removed. The statue of Britannia, made of artificial stone, which crowns the Nelson column at Yarmouth, remains uninjured by the exposure, to which the stone-work seems to be yielding. The Bau-Akademie, in Berlin, by Schinkel, is a remarkable example of the modern adaptation of moulded brick and terra cotta, of which every part, even the face of the walls, is most carefully wrought and finished.

The ancient examples are evidently formed simply of fine clay, or brick earth, carefully prepared and well burnt, and they are, therefore, precisely of the same nature as coarse pottery ware, and are correctly designated “terra cotta;” but the modern artificial stone is a very different substance, and greatly superior to them in hardness, texture, and colour. The result of inquiry at several establishments shows that some difference exists, both in the composition and processes adopted by the respective manufacturers, but without any obvious difference in the results. The principal ingredient is the white potter's clay, forming about one-half; pulverised stoneware, from one-third to one-fifth; ditto glass, from one-fourth to one-ninth; and some add, for finer purposes, a small portion of white Rye-gate sand, and powdered flint, about one-tenth

\* From a paper read at the Institute of Architects, by Mr. Charles Fowler, V.P.



part of each: these ingredients are carefully mixed in a pug mill to a stiff consistence, suitable for modelling or moulding, and then worked into the various forms required. With a view to ensure perfect burning, an uniform thickness must be preserved in all parts, usually about 1½ inch, but proportionate to the strength and bulk required: considerable attention is necessary in the process of drying, that it should be slow and regular, so as to avoid any distortion of form. The time to be allowed must, in some measure, be governed by the state of the atmosphere, and other circumstances: the same considerations regulate the burning, which should proceed by very slow degrees to a white heat, and ample time should be allowed for cooling, the practice in these respects, which appears to vary very widely in different manufactories, allowing from ten to fourteen days for drying, from seven to fourteen for burning, and three to four for cooling.

The kiln at Messrs. W. Cubitt and Co.'s, which may be taken as an ordinary example, is a cylinder of 10 ft. 6 in. diameter externally, and 10 ft. high to the base of the cone. The enclosing wall is two bricks thick, having a large opening for packing and unpacking the articles to be burnt. When the kiln is filled, this is closed up with lumps, preparatory to lighting the furnaces. The interior is lined with tiles half an inch thick, grooved, and tongued together, and set in Stourbridge clay, leaving a vacancy of four inches, which is called the muffling, all round. There are two furnaces, and about three tons of coals (Hartley's) are consumed in one burning. The progress of the burning is ascertained by looking through an inspection hole with a lens in the side of the kiln.

It should be observed, that the chief difficulty in preparing this material for the several purposes mentioned, is its liability to become distorted in drying and burning: to avoid this, it is necessary that the pieces should be short in proportion to their width; and then the deflections (which in some degree are unavoidable) may be so adjusted in setting as not to be conspicuous; and as the cornice is the part most remote from inspection, the imperfection is the less observable. Further, it may be presumed, that if the use of artificial stone were more general, and occasioned consequently a greater demand for this description of work, some means would no doubt be found for rendering the manufacture more perfect. In order to obtain a fall, or current, in the trough gutters, the bottoms are partially filled up with Portland cement, having the greatest thickness towards the centre, and gradually diminished to the outlets. This, besides facilitating the discharge of the rain-water, serves to strengthen the construction, by covering the joints and fortifying the sides. The colour of artificial stone assimilates tolerably well with Portland or Caen stone, but the texture is liable to have too much of the glare of pottery. Its durability, if properly manufactured, may be deemed almost unlimited, and its economy, if judiciously applied, is a further recommendation; but this involves many important considerations for the judgment and discretion of the architect.

Although these remarks have properly been limited to terra cotta and artificial stone, which, as the designation of the first implies, have to undergo the action of fire, yet, as the latter is now applied to a material prepared by a different process, it may not be irrelevant to make some mention of it upon this occasion. It appears that this substance consists of a concrete, formed with cement and sand, variously proportioned; and the forms are produced from moulds; consequently one of its chief advantages is economy, where numerous repetitions are required. If a nice finish is desired, these productions can be worked up and sharpened by the chisel.

In the course of the conversation which followed, Mr. C. H. Smith said, that the cost of mouldings of terra cotta at St. Pancras Church had been stated to be 5s. per foot, but that, he supposed, did not include the expense of cutting out the stone for its reception. He had done a great deal of moulding, enriched and not enriched, in Portland stone, at the Royal Exchange, for 3s. per foot on the average.\*

Mr. Smirke admitted the extreme durability of terra cotta; but his experience had proved, that a perfect continuity of line in terra cotta work could not be obtained.

Mr. Blanchard, a manufacturer, exhibited a piece, which, he said, had that perfect continuity. As a caution, he might say in respect to what had fallen from Mr. Smirke, that those who intended to use terra cotta should give a week's notice to the manufacturer, so that it might not be passed too rapidly through the various processes, but be allowed to dry and shrink regularly.

Mr. Scott observed, that of course it was their duty, as architects, to make use of every material which nature had placed at their disposal; and both stone and every other material ought to be employed in such modes, and in such ways, as were legitimate. They were only objectionable so far as they were imitations of other substances; and in the use of plastic materials almost too much honour was given to stone, inasmuch as everything was made to imitate that material. If plastic materials were used, why should they not be used as plastic materials? Terra cotta is a perfectly legitimate substance, and only becomes objectionable when it is turned into an artificial stone. The right solution of the problem was difficult, but he would throw out a hint to those interested in terra cotta—whether they could not introduce enamelled colours into it? It could not then be charged with being an imitation of stone: if it would possess exclusively a beauty of which it alone was capable—it would soon have a distinct place and purpose in Architecture—and it would emulate, without imitating, other materials.

#### ON THE NATURE AND EXTENT OF ORIGINALITY IN ARCHITECTURE.

THE present is evidently a crisis in the career of British architecture. It is probably pregnant with more interest than any former era; and, as in politics, under analogous circumstances, many parties are astir. We have not only our Conservatives and Reformers, but different grades of both, from a point where they blend into each other to a polar opposition. We have our advocates of chains, our apostles of freedom; and, of course, many conflicting theories and speculations are afloat, from which, however, the judicious observer may cull much that is suggestive and valuable. We have been called upon, with great reason and justice, to cease from slavish copying of the works of our predecessors, and to think for ourselves; to plan with reference to our own purposes, in all their peculiarity, and to those alone, and to construct as the nature of our materials and the present state of mechanical science dictate. But man is prone to go to extremes, and there are not wanting those who, like certain reformers of old, would root up all; and that we should not only order the general composition and construction but the decoration also, without reference to foregone art, has by some been assumed as a fundamental axiom of architecture.

This is not a newly-expressed proposition. The opinion seems to have prevailed for years, and frequently finds utterance among amateurs, art critics, and others, who, by their writings or their position, guide the public opinion, that there is something unsound in the practice of using, in any shape, the architecture of another country and time in present English erections; and it is broadly hinted that this is the "accursed thing" in our camp, from which we must be purified ere our art can become truthful and prosperous, and take its place in the general march of improvement.

According to theory of these, we must be absolutely independent of precedent, indebted to no age or country of the world; and, taking only the spider for our model, weave all from our own brain. We have been at one extreme of possible practice, that of slavish copying; this partly supposes the true practice to be diametrically opposed to it, and would beckon us to its antipodes. They would cut every tie of sympathy that binds us to the beautiful in ancient or foreign art. On the original, but lean, poverty-stricken, architecture so produced, no ray of the past must shine; Athens, Rome, Parma, Florence, Venice, Palermo, the wonders of ancient art, the miracles of mediæval design, the cathedral splendours of Strasburg, Cologne, Antwerp, York, and Lincoln, the abbies of Melrose, Tintern, and Westminster, have all existed in vain, for they are not to be at all referred to in this new style.

Against a consummation such as this, however, we must be permitted to urge in remonstrance, that it would be reducing the architect to a condition as to means in which he was never before placed; a condition to which the practice and example of the world, in literature and in every other art and science, is opposed. It is backed by no precedent, supported by no parallel, in the annals of progression: as well might a mechanic refuse the advantage of some scientific discovery, because he is not its author. The Italians had an architecture which was truly their own, and which is universally acknowledged to be such, and yet it was not thus produced. We talk of the Italian style as if it were something entirely distinct, and of their own invention: though many new features originated with them, they were perhaps not aware they had a style. True successors and followers of the ancients, all they aimed at was the application of the art they had left them to the new institutions and usages of society. They strove, however, to advance; they wrought in a spirit of emulation;—Vignola, Palladio, Scamozzi, Serlio, and the other classic architects of the sixteenth century, sought to rival their ancient masters, and therefore aimed in their edifices, and in their writings, to exhibit a sort of abstract of their beauties. They drew not their rules of proportion from any one particular edifice, which, as they well knew, might be defective; but, after selecting the most faultless examples, investigated their laws of beauty, sought the secret of their power, and united the graces and excellencies of all. The Italian orders may therefore be considered as ideal. The Roman architecture comes to us through a purifying process, winnowed from much original corruption. In this spirit working, they enriched the style. The poetry of their souls diffused itself over all their creations, and shed new lustre upon the art. Each new mind enriched it, as must ever be the case, with true art and artists. Genius, the deep-eyed, will look beyond the mere element: whatever material he uses, he plans and builds, Amphion-like, by the music of his soul. These great masters, while thus aiming at progression in architecture, had no idea of turning their backs upon the past: the antique orders, with their beautiful and philosophical proportions, were ready prepared to their hands, and, by a diligent study of their æsthetic laws, they, with them, produced works of art that might vie with the ancient models themselves, many of them "bearing the stamp of that rare simplicity," to quote an enthusiastic admirer, "that enchants the mind like an unveiled truth, which appears always easy to those to whom it is disclosed."

What these eminent professors did in Italy has been done elsewhere: Inigo Jones, Wren, Vanbrugh, Sir William Chambers, Gibbs, and others in England; De Lorme, Perrault, the Mansarts, in France, exercised a true and living art; they produced works which have been the admiration of Europe, yet they were not the offspring solely of their own minds; they took the Greco-Romano, or antique elements, working with them according to the great code of truth and nature. The terms "Palladian," or "Italian," which it is common to apply to these works, can refer only to an elementary relationship; the principles of adjustment, which alter not with time and circumstances, and which guided the Greek and Italian designers, they adopted; but they adapted their several edifices to particular local requirements, and used the elements derived from antiquity to express new ideas, and carry out the images of beauty born of their own minds. The architecture I speak of is, therefore, their own, notwithstanding much obligation to Italy. We are indebted to the stately measures and style of Petrarch, Tasso, Ariosto, and others, for a most refining influence upon our early sterling, but homely, verse; yet our property in that verse has never been disputed, nor has our poetry been called Italian.

But whilst referring to these masters, I would not hold up any of them as models of perfection; their best works are far from being such; far from what the antique elements are capable of: we can go beyond them; and, if progress is to be the watchword, we will go beyond them. As long as Whitehall, St. Paul's, and Blenheim exist, the names of Jones, Wren, and Vanbrugh, will be held in reverence; but we should not look upon these

\* The total cost of St. Pancras Church was 70,000*l*.



MERTON COLLEGE CHAPEL, OXFORD.\*



names, especially as regards their application of the antique architecture to ecclesiastical buildings, as the be-all and end-all of Anglo-classic architecture. They did much, and they did it well; they gave us much that is original and estimable; but their chief merit consists not so much in the Anglicism of their style, or beauty of their design, as in the masterly manner in which they met the wants, and

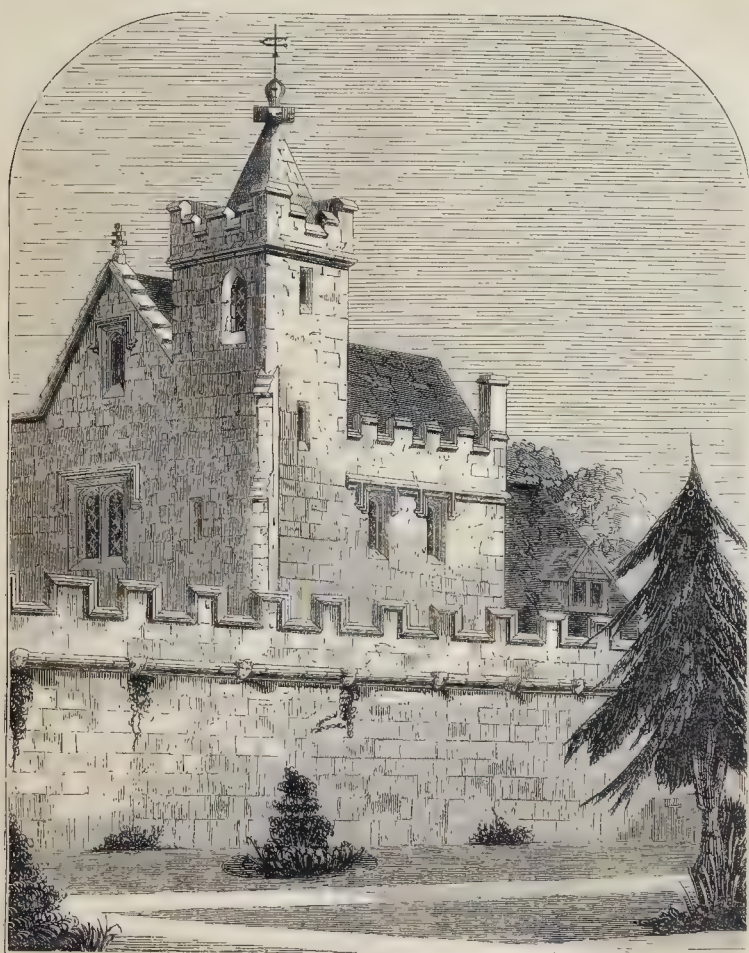
satisfied the prejudices of their age, without violating the sacred principles of art; and it is *there* that we must emulate them. The architecture of the period of these three masters is deeply complicated with the social and political movements of their times, and, to those who delight in tracing the more extreme effect of soul-born causes, presents a most interesting subject for contemplation.

Nor is the Italian architecture itself, considered generally, to be looked upon as perfection: it also is far from it: Italy has not fulfilled her promise at the renaissance. Had the stream of great architects that took its rise with Brunelleschi in the fifteenth century, maintained its full force, as did that of the painters; and had the masters of the sixteenth century found

\* See page 301 in our present number.



## PART OF THE OLD SCHOOLS, OXFORD.



successors capable of resisting the corrupting influence of Michaelangelo and Borromini, and who would have gone reverentially on, adapting the antique architecture to the changing spirit of the age; or had Jones and Wren, in England,—Algardi, and Ponzio, and Bernini, in Italy,—Perault and the Mansarts, in France,—had the influence upon the eighteenth century that might have been expected;—had Palladio and Vignola been the sole architects of St. Peter's, and other great enterprises proportionately appointed;—in a word, had Italy redeemed the grand promise of the sixteenth century, and England and France of the seventeenth, very different would have been the aggregate results at the present day in Europe.

Of the elements thus embraced by successive schools, are we alone, of the nineteenth century, to be denied the use? What has administered to the magnificence of kings, and been deemed worthy by the Greeks to enshrine their divinities, can we lightly relinquish? The Romans inherited the architecture of the Greeks,—the Italians, that of the Romans: have we, at whose feet munificent Time has laid the works of all three, no lot, no rightful inheritance in them? Had we not, the task before us would have been Herculean indeed, and one of which the Greeks themselves had no experience; for the architecture of the Athenian temples was not absolutely new. The Greeks adopted and adapted from their predecessors, while those predecessors themselves had a foregone art, however rude, to refer to;

and Rollin's eulogy upon the Egyptians and Babylonians must be looked upon as unphilosophical, when he attributes to their creative genius, "without any pattern to go by, the production of those stupendous works which have furnished examples for the people of every other country."

But the supposition is utterly baseless. The value of great men in chemistry, in physiology, and in every other operation of the human mind, whether philosophical, scientific, artistic, or literary, consists in rightly using the materials prepared for them by former men. Is the architect, I would ask, to be an exception to this rule? Is he alone to disdain his materials, and call out for a new style? Let him first discover the true principles, exhaust the significance of the old, before he seeks a new style. "We are as much gainers by finding a new property in the old earth as by acquiring a new planet." Local circumstances have, in all parts of the world, produced corresponding modifications of styles, and the local circumstances of our country, among which we may reckon the accumulation around us of the riches of foregone art, and the able treatises by modern professors on the subject, will influence and characterize ours; and a new style may yet come to us on the stream of time and change, but the attempt to invent a new style is as vain as was the search of the alchemist after the grand Arcanum.\*

\* To be continued.

## ENLARGEMENT OF THE BRITISH MUSEUM.

It is to be hoped that Mr. Hosking's or some other plan for obtaining increased accommodation at the British Museum may be adopted, and speedily carried out. That additional space is required at the Museum cannot be doubted for an instant. The interesting Assyrian remains which have been recently brought to England are treated worse than the Vernon Pictures were, having been literally assigned to a cellar. Besides, we may expect further antiquities from the same and other sources, and where are they to be placed? There are many paintings in the Museum which are now hung above the glass cases near the ceiling. Surely a room should be provided where these might be seen. But I have not yet alluded to the greatest stigma upon what is ironically called the British Museum. You will of course understand to what I refer—the absence of an extensive "Gallery of British Antiquities." There is already the nucleus for such a feature, and if space were provided it would soon be filled. C. B. A.

Another correspondent, who wishes to know how Mr. Hosking's plan was received by the trustees, says:—

"It is somewhat strange that the architect of the Museum did not so plan the buildings originally as to provide for the contingency—not an improbable one even at that time—of



after-additions being required. Instead of exercising such foresight, which, even if useless, would, at all events, have been harmless, Sir Robert Smirke has done that which must render the trustees very averse to any scheme for making additions that would destroy the inner quadrangle, more attention being paid there to consistency of architectural design and completeness than to the façade itself, for even were the latter very much better than it is, the disparity between the centre building and all the rest, would destroy all grandeur of ensemble. Likely enough it will be found out in the course of time—and not a very long time either—that a very great deal of space has been unnecessarily thrown away between the building and the street. Surely it would have been better to have brought the former quite up to the latter,—to have erected an ornamental screen façade, not having an open court behind it, as in the original Montague House, but a covered vestibule or avenue leading immediately from the street to the main building, which, being completely shut out from view, might have been quite a plain brick structure, and upon the ground between the body of the pile and the exterior façade other buildings might, without inconvenience, have been erected, as occasion for them might arise. Such is the case of the Bank of England, whose façades come up quite to the street pavement, and are, in fact, only so many screens that enclose a labyrinth of courts and irregular buildings.

ZETA.

#### FOREIGN ARCHITECTURAL COMPETITION.

SOCIETY FOR THE IMPROVEMENT OF ARCHITECTURE AT AMSTERDAM.

We are requested by Mr. Warnsinck to say, on the part of the committee, with respect to the plans for a theatre required in competition in 1848, that eight designs were received, one of which, coming too late and being unfinished, was not taken into consideration,—and that it is the unanimous opinion of the committee, that not any of the designs are entirely satisfactory, according to the conditions named in the programme; so that the prize of 500 florins cannot be awarded. Nevertheless, as the designs No. 3 ("La critique peut faire éviter ce qui est laid; le génie seul peut faire trouver ce qui est beau") and No. 6 ("Spectatum admissi risum tenentis amici") are considered far better than the others,—that is to say, No. 3 by the finish of the work, by a well-studied plan, and a distribution which has much merit, and No. 6 by a fine ordonnance both exterior and interior, conceived in a style pure and noble,—the committee offers to the authors of the two designs 300 florins, if they will consent to the notes being opened which contain their names and addresses, and to the yielding up of their designs to the society, who hereby invite them to do so.

#### THE PROPOSED BUILDING IN HYDE-PARK.

At a meeting of the Institute on the 24th inst., when Mr. Donaldson placed on the table his lithographic copy of the detailed drawings of the building, for the inspection of members, Mr. Tite asked Mr. D. whether an estimate had been made of the cost, and whether he would state what the amount was? Mr. Donaldson replied that an estimate had been made, but that he could not state the amount. Mr. Tite said that he had had much experience in large roofs of that nature, and he thought the roof alone would cost 95,000*l*. Mr. Donaldson considered that it would not cost anything like that amount. Mr. Mayhew then said, he was sorry, as a member of the council, that he was obliged to say anything against the erection of the building in question, but as he individually felt strongly that a building of such a nature ought not to be constructed on any site where it could not remain for a permanency, he felt it his duty to protest against it: the construction was principally of brickwork and iron-work, and would cost at least 100,000*l*., which enormous sum would be nearly wholly thrown away if it were erected on the proposed site;—that, feeling, as they did, obliged to Prince Albert for the idea, and for his endeavours generally to promote science and taste in this country, he considered that the Institute

ought to memorialise His Royal Highness, and guard him against the result anticipated, praying him to obtain another site for the proposed building, where it could remain permanently, or to erect one of a more temporary character and more appropriate for the site. He was going to read a resolution to that effect, but the chairman (Mr. Fowler), said he could not permit it, or allow a discussion to take place on the subject; but he was at liberty to give notice of motion for the next meeting. Mr. Burn said he entirely concurred in what had been said, and after a few other observations the matter dropped.

\*.\* We are decidedly opposed to any alteration as to site: such a determination would amount to a postponement, if not ultimately the abandonment, of the scheme. The plan for building must be modified, brick walls eschewed, and the dome be reconsidered. Which of the building committee individually will take the responsibility of the stability of this dome as at first designed?

A large number of the bills of quantities have been applied for, notwithstanding the price.

#### ON THE BEST MODE OF ARRANGING SEATS IN A PUBLIC ROOM FOR DISCUSSION AND HEARING.

THERE has been so much said of late on the subject of hearing, both in the House of Lords as well as the new House of Commons, that I think it is a subject well worthy of being discussed and commented on in THE BUILDER. I believe it is now a pretty well acknowledged fact that sound traverses in the same way as waves in still water when a stone is thrown in, viz., in concentric circles; and, another fact, that the angle of incidence is equal to the angle of reflection. Now, Sir, I think it stands to reason that if seats are arranged on the sides of a long room, persons directly opposite to the speaker would hear tolerably distinctly, but those seated at the furthest end of the room very indistinctly and imperfectly, and those in a gallery would scarcely hear at all. I believe that this has been found the case in both Houses of Parliament. Again, if you refer to the form of the Italian Opera House, or the arrangement of the Lecture Room at the Royal Institution,—in the one from the form of the house, and in the other from the general arrangement of the seats,—let a person be in any position, the sound is sent forth in distinct notes to all parts, and without vibration. There appears another advantage in this arrangement of seats, that the speakers can not only be distinctly heard, but also seen, by all parties; and at the same time it admits of a classification as required in the Houses of Parliament. I throw out these suggestions for the able discussion of those who are well capable of dilating on such a subject in a plain and practical way, and which might be of great assistance to the profession and others.

W.

#### BUILDERS' BILLS FOR WORK UNDER THE BUILDINGS ACT.

SABY V. MILLS.

THIS was an action brought in the Shoreditch County Court to recover the sum of 8*l*. 10*s*., balance of 18*l*. 10*s*. for the building of a workshop adjoining the gable end of the defendant's premises. Mr. Hutson, who appeared as solicitor for the defendant, submitted that the action could not be maintained, on the ground that the building was not in accordance with the statute of 7 & 8 Vict. c. 84, s. 13, and that the district surveyor had not, in conformity with the said enactment, received notice of the intended alteration. Mr. Hutson observed, that it was not to be supposed that the defendant should know anything about the Buildings Act, and urged that it was the duty of the builder to give the required notice. The consequence of such non-compliance with the Act had been that the greater portion of the erection was ordered by Mr. Wharton, the district surveyor, to be pulled down; the plaintiff having violated the Act of Parliament by using wood instead of brickwork. His Honour (Mr. Serjt. Storke) asked what the district surveyor was paid for his services? Mr. Hutson said the fee was 2*l*. 2*s*., in addition to which the defendant had paid 14*l*. for rebuilding that portion of the erection which was condemned.

Mr. Ashley, solicitor, on the part of the plaintiff, contended that there was nothing in the Act of Parliament to deprive the builder of his right to recover. It might be that a penalty had been incurred; but the work was done according to the

specification,—was not proceeded with until the plaintiff had notice from the defendant that he was to go on,—and was performed under the immediate superintendence of the defendant, who had from time to time expressed his satisfaction, had paid a portion of the estimate, and promised the payment of the balance.

These facts having been confirmed by the plaintiff's witnesses, his Honour said, that supposing there had been no such awkward legislation as the Buildings Act, the plaintiff's claim would have been as clear as the sun at noon-day. It was perfectly clear that neither party said anything about the district surveyor, and equally clear that the builder had done all he could according to the specification. But as the question was a novel one, and of considerable importance, he would defer his judgment that he might look into authorities and hear the testimony of the district surveyor.

Mr. Wharton having subsequently attended and given evidence, his Honour said he had looked into a variety of cases, but could find no decision under the Buildings Acts applicable to the present case. In the case of *Bensley v. Bignold* (5 Barn. & Ald. 335), Chief Justice Abbott had decided that a party could not recover in direct violation of the law. The case referred to was one in which the printer's name did not appear in the publication. There was also a case, *Foster v. Fowler* (5 Barn. & Adol. 809), where the plaintiff brought an action for fifteen firkins of butter, which were not marked according to an Act of Parliament of George the Second, in which Judge Littledale had ruled that the plaintiff could not recover. His Honour also cited a similar case, in which Judge Holt held the same opinion, and referred to the case of *Ex parte Dwyer* (Rose's Bankruptcy Cases, p. 349), in which Lord Eldon had ruled to the same effect. His Honour observed that although he could find no case precisely in point, he relied upon the decisions laid down by the authorities referred to as bearing upon the principle involved in the present case, and was therefore of opinion that the plaintiff must be nonsuited.

Mr. Ashley hoped his Honour would, under the circumstances, order each party to pay his own costs. His Honour said as it was a case in which legal assistance was required on both sides, he could not comply with Mr. Ashley's request: the costs must follow the verdict.

#### BRITISH ARCHEOLOGICAL ASSOCIATION.

On the 12th instant, Mr. Pettigrew, V.P., in the chair,—a variety of antiquities were exhibited by Mr. G. Lowe, Mr. Pratt, and Mr. L. Jewett.

Communications were received from the Rev. Mr. Massie, of Chester, recording the discovery in that city of a Roman bronze eagle, about two inches in length, and a Corinthian capital, near which were a silver coin of Trajan and other Roman remains;—from Mr. C. Baily, an account and rubbings of rude carvings or marks in some of the window jambs of Goodrich Castle, representing a man hawking, various animals, and an inscription which appears to be the work of Master Adam Hastun,—also an account of a rude and early basin now placed on the south side of the communion table at Tretre Church, Herefordshire, in the place usually occupied by the piscina, but it was very doubtful if it was ever used for this purpose;—from Mr. H. Syer Cuming, on an ivory signet ring of an Earl of Shrewsbury, now in the possession of Dr. Iliff, and which, from the arms of Nevill appearing in the shield, he thought might have belonged to the first earl,—also some observations on carvings in morse ivory.\*

#### METROPOLITAN COMMISSION OF SEWERS.

A PARTIAL response to our queries of last week has been given by Mr. Peto, who explained at the last meeting of the court, that with reference to the southern district of the metropolis, the whole of the plan of drainage may be considered as finally settled, the engineer being now engaged with the estimates. The earliest possible relief was requisite first for these districts. The plans for the Westminster district were also nearly ready. As to the northern, within ten days they were to consider the necessary plans in detail with the

\* At the previous meeting, May 22, Mr. Flanché exhibited a very interesting collection of tilting helmets and other parts of armour (contributed by Mr. Pratt), which the speaker said was one of the most perfect series of tilting helmets ever produced to any society; and at considerable length he pointed out the characters which distinguish the various ages of this important part of mediæval defence.



City Commissioners. It would no doubt be satisfactory to the public to hear that the Commission had determined to carry out one great principle in these plans, namely, the prevention of the pollution of the Thames, by avoiding the flow of any sewage water into it, as far as that is practicable. No sewer at all would discharge itself into the Thames in the southern district from Nine Elms and Battersea down to Deptford, where at first it might be necessary to discharge it into the river, but at a proper time of tide only. Into the details of the other districts he could not then enter, but the same great principle would be carried out. As to Westminster, however, he might mention, that they would be able to drain the whole effectually to a very low level by natural drainage, and without machinery or lifts, which however it would be impossible to do elsewhere north of the river. The Commissioners were anxious to satisfy the public as to their proceedings. The Court had had many valuable hints from the 150 plans under its consideration, but it had not been so much forwarded by them as to be able to make any more definite statement with reference to the northern districts. The expense, Lord Ebrington remarked, would be distributed over a series of years, and the money laid out with the most rigid economy. For every 10,000*l.* borrowed, 700*l.* only would be requisite in the shape of yearly interest and principal—or 7 to 8 per cent. The tender of Messrs. Humphreys and Thirk for 7,700*l.* for works in continuation of the Victoria-street sewer was then agreed to. In course of his explanation Mr. Peto stated that 580 miles of sewers had now been carefully surveyed and levelled, and that only 100 miles more remained unfinished. At the previous meeting of the Court Mr. Lawes read its decision on the rating of tythes at Kensington belonging to the rector. He had failed to appeal in time, but still urged as objections to payment that there was no authority but custom for rating tythes, and that this was a rent-charge, properly speaking, and derived no benefit from the works of the Commission. As the case stood, the Court decided that liability to poor-rates was *prima facie* evidence of liability to sewers rate, and that the rate must continue in force.

A curious scene occurred in the Commons the other day, when Lord Duncan intimated to the House that to his surprise, on calling at Greek-street, to inspect, as a rate-payer, the books of the Commissioners, he had found the minute-book a complete blank, from the 8th February last downwards. Lord Ebrington appeared to look on this as a very venial fault, but the House seemed to be of a different opinion, and so, we suspect, will the country.

### Books.

*Lincoln's-Inn : its Ancient and Modern Buildings, with an Account of the Library.* By W. H. SPILSBURY, Librarian. Pickering, 1850.

This is not a mere guide-book, though at first intended to be so. The librarian has found it a task so much to his liking that he has amplified it in its antiquarian details, and especially in his own peculiar department, to which more than a mere moiety of its three hundred and odd pages are devoted. To men of the law this little work must be more particularly interesting, but it contains matter of moment to general readers as well. There is a pretty full account of the old foundations and buildings as well as of the new; but having already had occasion to illustrate this subject both by engraving and by descriptive particulars in *THE BUILDER*, we shall now only refer such of our readers as desire further information to Mr. Spilsbury's more enlarged details, which are also illustrated by a few vignettes.

*Rudimentary Treatise on Warming and Ventilation.* By CHARLES TOMLINSON. With Illustrations. Double Part. Weale. This is a good recast of much of the still little-applied and greatly-needed information on ventilation and warming, contributed both by modern experience and ancient. As to warming, though probably in a more advanced state than ventilation in general practice, we have really not yet reached that point of civilisation and appreciation of comfort to which, as will

be here seen, the antiquated Chinese have (ever, we had almost said) been accustomed. The double walls and floor flues of Pekin might still be imitated in many cases to advantage in the nineteenth century, as they were by Sir William Chambers in the eighteenth. It is consoling to think, however, that we begin to imitate the "ingenious economy of the Chinese, from which we might often borrow a useful lesson," in their composite fuel of refuse coal for the attainment of much heat with little smoke. These modern ancients have better reason to abide by the example of their forefathers, in some particulars at least, than have we in the imitation of some of the neglectful or ignorant practices of our own progenitors.

The proper supply of fresh air is denied to the great mass of the population, because builders, who ought to be perfectly acquainted with these things (who ought also to be able to construct chimneys that will discharge their smoke into the air instead of into the room), too often neglect to study the natural laws which chemists and physiologists have placed on a sure basis. We are told that the native porters of Canton are accustomed to balance the load which they carry on a pole upon their shoulders, by means of a large stone at the other extremity of the pole, and that they deemed the suggestion of an Englishman an impertinent interference, who wished them to balance one package by means of another. "Our ancestors," they said, "were very wise men, and they never carried more than one package at a time, and this they balanced by means of a stone; shall we be wiser than our ancestors?" So may a large proportion of our modern builders exclaim, "Our ancestors were very wise men; they never thought of providing special means for ventilation in rooms and public buildings; shall we be wiser than our ancestors?"

### Miscellanea.

**RAILWAY JOTTINGS.**—The South Wales Railway was opened from Swansea to Chepstow, on Tuesday week. The only tunnel on the line is one of 800 yards at Newport. The Tawe is crossed by a wooden viaduct, 1797 feet 3 inches in length, and containing 37 spans or trusses; the span crossing the river being 110 feet in length; the others varying from 26 to 27 feet: the span of the centre arch over the river is 102 feet, and the height from high-water mark to under beam 72 feet. In the construction, 2600 loads of wood have been employed, with 350 tons of cast and wrought iron, and 3,000 cubic yards of stone-work. The contract was taken by Mr. Hennet, of Bristol, and has been mainly executed since September last. The engineer of the line is Mr. Brunel.

A viaduct across the river Blyth has just been opened. It is 30 feet high and 770 long. The contractor was Mr. Cail, of Westoe; and the engineer, Mr. Nicholson, of Newcastle. Several locomotives have been shipped at Liverpool for Cadiz, to work on the line from Madrid to Aranjuez. A lady was burnt to death on the Lyons line of railway lately, while the train was in transit, and her husband in vain shouting to the "guards" for help. The writer of a letter to the *Gazette des Tribunaux*, while pointing attention to this fact, recommends that "a cord should be attached to an alarm-bell, as in Germany, or some other means should be established to enable passengers to have the train stopped in case of accident." How such a system works in Germany we do not know, but the American mode of free access to guards through or along the carriages is certainly far preferable, and the perpetual occurrence of accidents of a very varied description, in this country as well as abroad, most urgently demands the adoption of some such mode of guarding against them. The office of a "guard" attached to trains in transit is a complete mockery. An accident of frequent occurrence happened near Montrose last week, in the fall of a child from a carriage door while the train was running at the rate of 25 miles an hour. "The guard being far back among the carriages, the cry of the passengers was not heard for some minutes, during which the train had proceeded to the Collieston station." So it is in hundreds of cases. The guard is one of the most useless appendages to a train, and is almost sure to

fail at the pinch; whereas, were it his duty to traverse the train as a watchman, on a proper footboard, or other means of passing to and fro, provided for the purpose, he would really merit the name of a guard, and be of constant use as such in ways innumerable for the palliation and prevention of serious accidents. The Railway Commissioners recommended the adoption of such a precaution in preference to the objectionable system of signals without any freedom of movement for the guards.

**CROYDON RAILWAY ENGINE-HOUSES.**—A correspondent suggests that it would be very desirable to convert these rather ornamental buildings into chapels of ease to the parish churches, instead of selling them off by auction to be pulled to pieces. At Forest Hill there has long been a great need for church accommodation, and the adoption of his suggestion, he says, even though removal and rebuilding were necessary, might save the greater expense of erecting a church as proposed. Near the Norwood station a Dissenting meeting-house is all but finished.

**WORKMEN AND THE '51 EXHIBITION.**—The Manchester Working Men's Committee have issued an address to their fellow-workmen, wherein they say,—"If you are interested in the existence of plenty, so are you interested in the increase of all those inventions, both mechanical and chemical, which tend to produce it. You are therefore interested, and your welfare is consulted by the promoters of the Exhibition, who invite the inventors of improved agricultural implements, and the discoverers of improved modes of tillage, to make public their inventions and discoveries, securing them from appropriation and piracy by others. \* \* \*

You of the iron trades in particular are directly interested in every improvement; for an obvious improvement upon a few of our staple machines, mules, or looms, to wit, would set all your idlers to work; and the greater the progress of invention, the greater will be the demand for your labour, and the higher your wages. Other trades may say, and probably do say, that the progress of invention will supersede their labour, and that they are therefore rather interested in keeping back invention than in forwarding it. We know that this feeling does prevail, and although we do not share it, we are bound to respect the feelings of the subjects of it; and to them we say, let us for argument's sake suppose it true. Let us suppose an improved machine introduced in any one trade. If it speed production it cheapens produce, and in an article of general consumption all the world is benefited—except some of the workers in the particular branch improved. Ought the interests of the world to be neglected on account of this derangement? Is it not wiser to seek to remedy the partial evil without combating against the universal good? But we are only supposing the progress of invention to supersede human labour: our belief is, that it ought only to open up new spheres of operation, for nature requires labour from us all, as the inseparable condition of health."

**THE IRON WORKS OF SCOTLAND.**—There are four great iron-works in Scotland, containing 28 works and 135 furnaces, which were in blast in July 1849. The most northerly field lies on both sides of the Forth, and contains 5 works, and 15 furnaces—Devon 1, Forth 5, Lochgelly 2, Kinneil 4, Carron 3. The largest is that of Clydesdale, containing 15 works, and 85 furnaces—Garscube 1, Govan 5, Clyde 7, Gartsherrie 16, Summerlee 6, Dundun 9, Calder 7, Carnbrae 6, Monkland 3, Omoa 4, Coltness 6, Shotts 4, Castlchilly 2, Chapel 3, Langloan 6. The most westerly field is that in the north of Ayrshire, containing 4 works and 22 furnaces—Kilbirnie 9, Blair 6, Kilwinning 3, Portland 4. The most southerly field lies on the borders of the shires of Ayr, Lanark, and Dumfries, containing 4 works and 13 furnaces—Lugar 4, Dalmellington 2, Muirkirk 3, Nithsdale 3.—*North British Mail.*

**THE MEDALS FOR THE 1851 EXHIBITION.**—Amongst the designs for medals forwarded in reply to the Commissioners' advertisement, and now being exhibited at the Society of Arts, are a few works of considerable merit, but the majority of them are repetitions of one most hacknied type. Nos. 24, 27, 34, 43, and 54, 55, and 56 (in one frame); 104 (3 in one frame); 105 (ditto); 108 and 113 all deserve attention,



**PROVINCIAL.**—A new church (St. Jude's) is in course of erection at Southsea, from designs by Mr. T. E. Owen. It is Decorated in style, with nave 90 feet by 30; two aisles, each 75 feet by 15; and a chancel 33 feet by 27. There will be a tower at the S.E. angle of the nave, with spire, together 150 feet in height. The structure will be of flint, with Caen stone windows and dressings, and an open timber roof 60 feet high (internally) from floor to point of ceiling. The church will contain seats for 1,000 persons, 340 free.—The chief stone of new Kingswood school, Bath, for sons of Wesleyan ministers, was laid on Thursday week, at Lansdown-hills.—The memorial window in honour of the late Queen Dowager, lately subscribed for at Worcester, &c., is now proposed to be put up at the east end of the new church to be erected at North Malvern.—St. Peter's Church, Bedford, enlarged in 1846, is already too small for the parishioners, and another enlargement is to be made by subscription.—The Church of St. Michael and All Angels, Shelf, consecrated by the Bishop of Ripon on Friday, week before last, has been erected and endowed mainly by the family of Mr. Hardy, late M.P. for Bradford. The design was by Messrs. Mallinson and Healey, of Bradford and Halifax, architects, and is in the Early Geometric Decorated style.—The masons of Blackburn have struck work for an advance of 6d. a-day in their wages.—The Sunderland Docks were opened on Thursday week. The length of the portion just opened is stated at 2,000 feet, average breadth 440; covering in all, 18½ acres. A spacious tidal harbour has been formed. The dock entrance is 60 feet wide; depth of water at quays, 20 feet; in middle, 24 feet. Length of quays in dock, 5,248 feet; in half-tide basin, 1,026 feet. The dock will contain 260 vessels; half-tide basin, 38. The cost of works yet to complete, viz., sea outlet, piers, and tidal basin, is stated at 60,000l.; the whole to be finished in about two years.—The Mayor of Norwich, Mr. Woodcock, having presented to the city a turret-clock (illuminated) for the Guildhall, and the council having called for designs for a turret to receive it, five architects (Messrs. Brown, Bunn, Glover, Kitton, and Kerr) submitted designs, and the decision was given unanimously in favour of a design by the latter, who has therefore received instructions to carry out the work.—The *Scotsman* is advocating the establishment of a National Museum in Edinburgh.—A new Dominican friary is in course of erection at Cork. It is Italian, with a campanile 100 feet high.

**PURSUIT OF ART UNDER SINGULAR DIFFICULTIES.**—A self-taught artist named Carter has recently died at Coggeshall, Essex, where he had for many years resided. He was originally a farm labourer, and by accident lost the power of every part of his body but the head and neck. By the force of perseverance and an active mind, however, he acquired the power of drawing and painting, by holding the pencil between his lips and teeth, when placed there by the kind offices of an affectionate sister. In this manner he has not only whiled away the greater part of fourteen years of almost utter physical helplessness, but has actually produced works which have met with high commendation. His groups and compositions are said to have been "most delicately worked and highly finished." The poor fellow had contemplated the preparation of some grand work for the International Exhibition, but the little of physical life remaining in him was lately extinguished by a new accident. The best of his art-productions would surely be worth a place in the Industrial Exhibition even independently of anything like art-merit.

**WESTMINSTER BRIDGE.**—The trustees are applying to Parliament for power to erect a temporary bridge, in case the old bridge become so dangerous as to prevent traffic crossing it altogether, till either repaired or rebuilt. The arches, it appears, are still sinking, as they have continued to do during the last six months, or rather for years, at intervals. Sir R. Inglis deprecated the idea of any further attempt to repair the present structure, as the committee appointed four years ago had found that the foundations were originally vicious, and could never be made sound. Yet it was still proposed to repair it at an expense of 70,000l., while, of 360,000l. required for a new

bridge, 100,000l. would be furnished by the Bridge Estate Fund.—In the third report of the committee of the Commons alluded to, dated 5th August, 1846, the first resolution states, "That the majority of the witnesses who have been examined on the point, concur in the statement that the foundation of Westminster-bridge having been originally vicious, the bridge can never be permanently sound." Now, as the majority of witnesses comprised the first civil engineering talent, it is somewhat odd that such opinion should go for nothing; and that in June 1850, without any subsequent report, a Bill should be introduced "to build and maintain a temporary bridge during the repairs of the present structure." It perhaps may be, that as, by the erection of a temporary bridge, an opportunity will be afforded of viewing the new palace from a more distant point, after all, the new structure (for repairing the "vicious" old bridge is out of the question) will start from the wharfs north of the Board of Control, thus carrying a new line of road by Charles-street into St. James's-park, relieving Great George-street of much of its traffic, and leaving it more free as an approach from the Park to the Houses of Parliament, at the same time giving an opportunity for clearing away the mass of old dilapidated buildings lying between Charles-street and Downing-street as a proper site for the Records, being in immediate connection with the State Paper Office, and the principal Government offices. This plan seems to possess many advantages, and the injury done to property in Bridge-street would be comparatively trifling. It is understood the south side of Bridge-street is to be removed for the New Palace quadrangle, the houses on the north side thus becoming far more valuable as private or official residences.—A. Z.

**BIRMINGHAM SOCIETY OF ARTS AND SCHOOL OF DESIGN.**—The annual meeting of the subscribers and friends of this institution was held on Friday in last week, when the committee's report was read, congratulating the subscribers on the progress and prospects made. The number of students during the previous month was 514, of whom 149 were young women. Appeal was made to the paintings and drawings exhibited on the walls as evidence of progress. The committee also specially noticed a design by one of the students for a table to be electrotyped in silver for Prince Albert and placed in the International Exhibition. The meeting was a numerous one, and various appropriate addresses were delivered and resolutions passed in support of the society and its objects.

**SIX HUNDRED NEW CHURCHES.**—The commissioners inquiring into the practicability of subdividing the more populous parishes into separate parishes of 4,000 souls, report that an immediate and pressing demand exists for 600 new churches, at a cost of 2,000,000l. "Some not needing to be very capacious or expensive, might be estimated at an average of 3,500l. each, the total being 2,100,000l." The commissioners propose the sale of advowsons in the gift of the chancellorship, to provide means for proceeding with the work.

**IMPROVEMENT IN BLASTING.**—A cartridge tube of water-proof paper, made of a conical or sugar-loaf form, has been used at Philadelphia by a Mr. Speakman, for insertion into the usual blast hole, in order to ensure a greater breadth of effect. Rammed in with earth, and fired, the force of the wedge-like mass of powder is said to take a lateral direction, and to yield double execution compared with the old operation of tamping.

**STATE PAPERS.**—We are glad to learn that at a recent meeting of the Commissioners for Publishing State Papers, they came to the resolution of publishing accurate calendars of the domestic papers in this noble collection during the reigns of Edward VI., Mary, and Elizabeth;—and, moreover, that they have unanimously entrusted the editorship of this national work to Mr. R. Lemon.

**THE WEST LONDON LITERARY INSTITUTION, CHELSEA,** contemplates the erection of a lecture hall, &c. An eligible site having presented itself, the council propose to raise 2,000l. in 400 loan shares of 5l. each, to bear interest, and to be in the nature of an equitable charge upon the building itself; such shares to be paid in monthly instalments of 10s. per share, until paid up.

**STEEL AND IRON.**—In the history of a penny-half-penny foreign file, the *Manchester Courier* gives some curious particulars on the subject of foreign competition in steel and iron. The file was bought in a Birmingham retail shop, though made in Germany. A file-maker in Birmingham said he could not make it for anything like the money. One of the largest file manufacturers in Sheffield "could not possibly make even 1,000 dozen of them for less than 2s. 6d. a dozen, or 2½d. each."—A demand for British iron seems to be springing up in Spain. Madrid is setting the example by sending over for pipes, pumping engines, and machinery, for new water-works about to be established, to supersede the old water-carriers by a plentiful supply from the river Lozoya. Mining implements of British manufacture are also in demand.—The price of iron in the manufacturing districts is likely to be still further reduced, notwithstanding recent limitations of make.

**NAMES OF STREETS.**—The Genoese have found out, before ourselves, the folly of calling a street New-street; but they have not very wisely corrected it by naming one of their last New-street, — Strada Nuovissima. Upon this principle they must call the next street they build Newer-than-all-street, or Extremely-new-street, or New-of-the-very-newest-description-street. They seem to have no idea of calling their streets, as we do, after the names of obscure builders and proprietors—a very dull custom and idle piece of vanity, especially in a country that abounds in great names. The streets of a metropolis ought to exhaust the whole nomenclature of great men, national or otherwise, before it begins with bricklayers.—*Autobiography of Leigh Hunt.*

**REMOVAL OF A WAREHOUSE.**—The wholesale removal of a large warehouse was achieved last week at Cardiff. Messrs. Grant, timber merchants, having lately had occasion to enlarge their premises, found it necessary to remove their bonded warehouse a distance of about one hundred feet. Instead of accompanying the task by taking the whole asunder and shifting it stick by stick, in the old style the entire pile was the other day at once removed, with great ease, and without extracting a single nail, by raising the whole warehouse on rollers and propelling it by massive chains.

**HALL OF ASSEMBLY FOR WEST-END.**—A capacious music or assembly hall has been projected for erection in Langham-place, Regent-street, on the site of the carriage repository adjoining All Soul's Church. The cost is estimated at 20,000l. to 25,000l. including purchase of lease, &c. A plan of the building, by Mr. W. A. Boulnois, architect, has been lithographed for private circulation.

**CHOLERAIC EFFECTS OF CESSPOOL AND SEWER EMANATIONS.**—At Newport, Monmouthshire, a coroner's jury has just returned a verdict, to the effect that the death of a woman, who was seized with all the symptoms of cholera during the cleansing of a cesspool, "was caused by inhaling the sulphuretted hydrogen gas emitted from the contents of the pool,"—a clear enough index to the nature of one at least of the causes at work in towns with defective sewerage, during the prevalence of cholera in hot seasons.

## TENDERS

Delivered to the Metropolitan Commissioners of Sewers for sewers in Westminster, agreeable to advertisement in our paper of the 14th inst.

Johnson	£9,800
Smith and Pierce	9,500
Hill	7,900
Humphreys and Thurst (accepted)	7,900

For the erection of a chapel at St. Mary Cray, Kent; Mr. R. M. Phipson, architect.

C. Townsend (St. Mary Cray)	£4,226
W. Feak	4,012
Cooper and Davis	3,950
W. Higgs	3,945
John Carter	3,892
W. Harding (Fulham)	3,822
J. Faithfull	3,772
G. May	3,715
John Young	3,588
Walker and Soper	3,036
John Goodwin (Lewisham)	2,973
James Barker	2,974

For three warehouses to be erected in Queen-street; Mr. John Griffiths, architect.

Jay	£9,643
Dixon	8,730
Abby	8,749
Locke and Nesham	8,500
Haines	8,359
Trego	8,160
Grimsdell	7,963
Brown	7,467











# The Builder.

No. CCCLXXXVII.

SATURDAY, JULY 6, 1850.

**P**ERSPECTIVE may be learnt either on trust or on conviction, says Mr. Henry Twining. "In the first case the most complete reliance is required, taking all that is set down for granted, without any concern as to why and wherefore; but if the reason be sought of those results which are equally admirable for their neatness and for their precision, a much greater degree of assiduous attention is required than the practical facility of the processes employed would naturally lead to expect."

To facilitate this acquirement is the object of a little volume which the author has recently published, under the title of an "Inquiry into the Nature and Application of Perspective and Foreshortening; with a view to afford guiding principles in these branches of art."\* It may be looked upon as an appendix to Mr. Twining's former work, the "Philosophy of Painting"; like that, requires study as well as reading; and is not put forth as a first book, but for the use of those who, having sported in the shallows, would now get into deeper water. Perspective, taught mechanically, affords very little enlightenment to the understanding and small increase of pleasure to the mind, whereas, by the rightful application of the principles of optics, on which perspective is founded, the appreciation of nature is heightened; the mind derives from the study precision and penetration, and seeing more, finds more to be delighted with:—

"Those wonderful examples of combined symmetry and progression which are exhibited in the retiring façade of a large building, would strike us less agreeably had we not learned, practically, to trace symmetry most beautifully combined with progression, in the effect presented by a multiplicity of retiring lines and ornaments. That the kind of beauty which results from uniform diminution in the flight of objects, as they vanish before our gaze, does not impress itself upon us naturally and without tuition, is proved by the difficulty and time which have been required by our predecessors in art to lay hold of and to realise this effect in their paintings."

The depths of the science cannot be reached without resolution and thoughtful application, but the value of the attainment will far exceed the cost of it to those who will persevere; and so such we introduce Mr. Twining's book as a valuable auxiliary.

Mr. G. B. Moore's "Perspective: its Theory and Practice,"† is another endeavour to advance this science, and to show that it ought no longer to be considered a study only necessary to the artist, but as a branch of optics useful to all who are anxious to improve their power of correct vision, and interesting to those who find pleasure in investigating nature's laws.

The publication of this work appears to have been prompted by recent statements, "that light-lined perspective, as at present taught and used, is not the truth, and cannot be sustained, not being in harmony with the law of nature, of reason, or of vision,"—statements which were not long ago discussed in our pages at considerable length. Mr. Moore has

treated the subject succinctly and perspicuously, and gives two-and-twenty plates in illustration of his views.

We have long urged the importance of making a knowledge of drawing general in England;—that it should not be regarded as an accomplishment, and be confined to the few, but considered absolutely necessary, and given to all: it should be taught as a matter of course in all our national and free schools. "Drawing from Objects, being an Abstract of Lessons on Linear Drawing given at Home and Colonial Training Schools," by Hannah Bolton,\* has this end in view. It is intended chiefly for the use of teachers, and is mainly an exposition of Dupuis's system of drawing from models, introduced into England about eight years ago:—

"Its inventor, M. Dupuis, convinced by experience that whatever attainment might have been made in the art of copying, it by no means necessarily gave skill in drawing from nature, and, therefore, that the copy could never stand in place of the original object, sought to remedy this defect by the invention of a series of models, beginning with a simple line of wire, gradually increasing in complexity of construction. If, as it has been said, all objects are reducible to simple geometrical forms, it follows, that if a plan were devised by which this reduction could be effected, and the parts exhibited singly, there would be little difficulty in thus working from the simple to the complex, in delineating the finished and perfect objects themselves. As Dr. Johnson observes, 'Divide and conquer is a principle equally just in science as in policy.' If a pupil could draw a square in every possible position as a model, he could, with equal ease, represent a door, or a window, or a wall, or any other object containing four sides and four right angles. Could his hand delineate a curve in every aspect it is capable of assuming, curvilinear objects would be represented by him with equal facility. In each case the principle involved would be the same. This wise division Dupuis has effected: solids have been reduced to lines, and many lines reduced to one line."

As a matter of course, this system will only take the pupil a certain distance on: those who would go farther must tread the ancient ways.

For elementary instruction, and for educating the eye and hand of large numbers of students, the system is a good one, and when accompanied by proper commentary and explanation, such as Hannah Bolton's work will enable teachers to give, it will go farther, and aid in cultivating the mind. "The business of education," says Locke, as quoted by our author, "is not, as I think, to perfect a learner in all or any one of the sciences, but to give his mind that disposition and those habits that may enable him to attain any part of knowledge he shall stand in need of in the future course of his life."

So this system does not profess to perfect the student in the acquisition of the art of drawing, but so to direct his thoughts and arouse his faculties, as to show him what he may do, make him desire to proceed, and put him in the way of accomplishing his wishes.

And now, to go from those who want teaching to those who do draw. The last volume issued under the direction of the Architectural Society, consists of "Views, Elevations, and Sections of Minster Lovell Church, Oxfordshire."‡ Minster Lovell is about three miles from Witney, on the right of the road to Cheltenham. The church was built in the reign of Henry VI. (about 1425): it "is distinguished for the combination of great simplicity with remarkable elegance of design;" and the general

effect is strikingly good from every point of view. The plan is believed to be unique. It is a cross church without aisles, and its peculiarity consists in the tower being of smaller dimensions than the space formed by the crossing of the transepts with the nave and chancel, all of which are of a different width. It stands free in the central space on four arches, and these are connected with the angles of the building by smaller arches, placed diagonally, by which arrangement intricacy and considerable play of light and shade are obtained. Wonderfully ingenious fellows were these mediæval artists, constantly producing diversity and striking out fresh beauties! The society, in the preface, deny the supposition that by publishing drawings of this description they wish to dispense with the employment of architects. They say this is far from their intention; that they are quite aware of the value of an architect's services, and that if he do his duty to his employers he commonly saves more than the cost of them.

## COMPETITION FOR THE 1851 BUILDINGS.

A GREAT cry has been raised against placing the building for the 1851 Exhibition in Hyde-park; and, as it seems to us, on slight grounds. The fears of annoyance expressed by some of the inhabitants of Kensington are greatly exaggerated: they were not even whispered before the appearance of the proposed plan, and seem to have reference more to the probability of the building remaining permanent than to the one Exhibition. A counter petition, from the inhabitants of the neighbourhood, to both Houses of Parliament, has been most respectfully signed.

The Commissioners, or rather the Building Committee, have issued a long memorandum of the grounds on which the site was selected. In this they defend the employment of brick-work and iron for the temporary building, but suggest that the dome will be abandoned, and that any cheap mode of construction proposed will be fully considered. The apprehension that the park will be injured is entirely groundless. A month after the removal of the structure there need be no evidence that it was ever there. We sincerely hope that the proposal to change the site will not be entertained, and that England will maintain her credit for consistency before the world. The Building Committee may thank themselves mainly for the outcry; their unwise and unjust continental report has greatly contributed to injure the scheme: they owe to themselves and to the country an explanation and revision of it. We continue to receive numerous letters on the subject, but have room only for one.

The subject of proper Committees in Architectural Competitions has been long felt to be of essential, I might indeed say, of vital importance to the profession: some persons are of opinion that every mischief connected with parochial and other committees, is consequent to the want of professional knowledge, and they suggest the annexation of Architects to the committee. Others opine that even ignorance is less injurious than professional interests and jealousy, and point to various instances where the presence of an architect or a builder has by no means prevented gross injustice. A medium course is sometimes adopted, whereby the Committee or Commission, as may be, delegates to a professional sub-Committee the task of selecting and recommending the best designs. To men of principle and experience this mode is liable to the serious objection of dividing the responsibility and virtually annihilating all responsibility. Two royal commissions, that in the Fine Arts and that now superintending the intended National Exhibition of 1851, have adopted that course by delegating the judgment to professional men of high standing: in the former case it did not lead to so good a result as the circumstances gave reason to expect, and in the present instance no man of any knowledge and candour can say that the decision is not strikingly partial, unnatural, and

\* London: Longman, Brown, and Co. 1850.

† London: Taylor, Walton, and Co. 1850.

\* London: Groombridge and Sons. 1850.

‡ Oxford: John Henry Parker. 1850.



absurd. Men who had received from their colleagues in the profession every mark of esteem, respect, and good will, have not hesitated to brand our English architects with incompetency in the most unwarrantable and unjust manner. They have declared to the world that out of 185 designs by their countrymen, only three are entitled to especial notice and commendation, whilst of foreigners' performances, seventeen out of thirty-seven are worthy of distinction; and to arrive at this decision they have unblushingly overlooked all their conditions of the competition, and made *post-facto* rules of requisites opposed to good faith and good practical sense; and in adopting and incorporating in their own design the suggestions of several Englishmen's drawings—suggestions which they had not the candour to acknowledge or report—they have belied their verdict and eaten their own words without digesting their meaning. The case is too glaring to admit of a doubt, and too important to be forgiven. If the architects are resolved to set the question of "fair competition" on a better footing, they must seize the opportunity offered (and a better can never occur) of teaching those who make a wrong use of power, that injustice is not always unpunished. Let the profession at large call a public meeting, for the purpose of appointing a committee to inquire into and report on the conduct of the professional committee in the late competition. Let the architects do justice to themselves in a temperate, becoming way, and I will answer for it that the public will respect them for a proper sense of their own dignity and character. If they do not, but remain submissive to the rod, they must never again complain if it be laid on without mercy by every petty trader who can influence a committee of parishioners to their detriment.

In making these remarks, I have done, for Englishmen, what on former occasions I have done for foreigners under ill treatment; and I hope that the character of my country will not be impaired either by subservient truckling or by timid selfishness, but, in a course of full, fair, and uncompromising emulation, they will meet their fellow men in open competition, from all parts of the world, without fear or favour.

A PROMOTER OF JUSTICE.

#### ON THE NATURE AND EXTENT OF ORIGINALITY IN ARCHITECTURE.\*

Even a new classic order has not been found, though numerous attempts have been made, at different times, to produce one; a failure ignorantly attributed to the fettered state of the human imagination, and the scantiness of its ideas. The Romans neither added, nor attempted to add, a new order to the primitive three. They had several kinds of Composite ones; the parts of the Greek orders they variously combined for the exhibition of diversity, and thus acknowledged their sense of the impossibility of generating a new one, specifically independent and distinct in its character. There is in truth no room for one. And if we are unable to discover a new species, we can have little hope of adding to the general (if I may use the comparison) in the shape of a new style. There is scope for invention in adapting these styles to our new purposes; and a modification of existing styles, so distinct as to have the effect of a new one, may grow out of them; but the invention of a new style is a chimera of the brain, from which the sooner we are delivered the better for the real welfare of the art.

If, then, we have a right to what time has left us of materials, and no alternative but to employ them, it only remains to mark out distinctly our course. Those who devote themselves to the pursuit of classic architecture have a good apology for their conduct; and those who choose the Pointed system are not without excuse. Most persons have a natural bias, a predominance of feeling in favour of one particular style, and each system will probably always have its exclusive admirers and followers. I see no reason why they should not be so cultivated: each expresses what the other could not so distinctly and vigorously express. The vertical principle of the one, renders it preeminently fitted for sacred purposes; while the antique is unquestionably best suited to those of a civil and domestic nature.

\* See page 305 ante.

The development of the Gothic system was a remarkable advance in the march of architecture: possessing new attributes, unfolding a new principle equally natural with the horizontal, and which, worked out, is capable of the most striking results,—new and important lessons came with it into the great school of the art. For ecclesiastical or sacred ideas, it is, unquestionably, the best vehicle of expression. When religion is the thing to be voiced forth, it is the most vital organ. Traversing our venerable cathedrals, designer and workman are alike forgotten, and the edifice seems some organized and sacred birth of nature, sprung like a plant or tree from the parent earth, and instinct with a spiritual life; and "the long-drawn," pillared aisle, and "fretted vault," are eminently calculated to inspire devotional feeling, and awaken contemplation in keeping with their religious destination.

To the development of Gothic architecture we are thus indebted, not only for structures far superior to any ecclesiastical erections existing before, in size and splendour, but for extending the domain of the art, enlarging the sphere of its expression, and making its analogical and symbolical power more generally known and felt than it had been before. Symbolism is doubtless an element of art: along with analogy, it is the means of giving to edifices a definite signification, intimating the object, physical or moral, contemplated in their erection; and, in Gothic ecclesiastical architecture, that power was naturally directed to the utterance of religious thoughts and sentiments.

The imagination has had too much rein given it in explaining ecclesiastical architecture: symbolism is too much ramified, its language misapplied, and its power abused, when extended to particular theological doctrines. But though not sectarian—though it stoop to no creed—art is essentially religious. The preaching of Christianity gave birth to new ideas, and inspired new hopes, which, among other modes of expression, sought utterance also in architecture; and the rise of the Pointed system met this want more fully than the earlier ecclesiastical, or Byzantine, had done; and in the peculiar sublimity of the Gothic, its heavenward tendency, we behold a reflection of their new conceptions of the Deity, of the high destiny of the soul; and the general composition and style of our cathedrals may be considered as expressive of the harmony, spirit, and unity of Christianity. They seem to open a new world of emotion, exciting feelings totally different to those inspired by the great structures of other styles,—feelings connected with "the holy problem of the universe;" spurning earth, they refer to something beyond the bounds of time and the present scene, to another and more permanent state of existence.

Whilst speaking thus in reference to Gothic design, I must yet claim precedence for the antique architecture, in application to our multitudinous secular purposes. The Romans—and they were no slavish copyists—revered the Greeks as their masters in the school of art, and nothing remains for us but to tread in their footsteps, and follow their example.

Those who choose the Greco-Romano, or classic system, might plead its origin from the greatest people, in the finer exertions of the intellect, which the world has yet seen,—that the highest human genius reigning in its design, left the spirit of beauty there supreme. As far as their purposes demanded, the Greeks reached the beau idéal of architecture; their works bear the impress of finished thought, the most acute perception of beauty in nature, and the highest poetic feeling in portraying it. Such being the case, the Greek architecture finds response in the breast of every man of true taste, who must feel that the endeavour after a new style, to equal *that* in beauty, would be "the desire of the moth for the star."

It has been chosen, not only for its attributes as exhibited in Greek design, for its chasteness, its sageness, and grandeur, but for its vitality, its perfect organization, for its capability, where its spirit is thoroughly understood, of accommodating itself to every exigency of civilised life, and its faculty of expressing each variety of character, from the grave and solemn to the gay and mirthful. A copious, ductile, and at the same time nervous, fully developed,

architectural language, susceptible of every shade of thought, and of giving harmony, grace, and expression, our multifarious modern purposes eminently demands, and here is one fully answering the description, the one most capable of being moulded to various shades of meaning, and producing a specific expression. It was enriched, and grew big with the conceptions of a great people, who gradually moulded it to their purposes; and it has long proved itself capable of the most comprehensive application, without violence to its spirit and character.

For these reasons classic architecture has been chosen, but it is as the materials only of design. The objection that it is not of our country's growth, but of another clime and people, existing under institutions totally different from ours, is met by the fact of its universal adaptiveness; and I would only further remark, that all civilised nations have received it as they have their poetry and literature. If we derive our architecture from a foreign source we imitate the Romans, and even the Greeks themselves; and inasmuch as it was applied by both these nations to purposes different to ours, we have the greater scope for originality in its new application; its adaptation to our wants calls the louder for the operation of judgment and reason upon it; the fact at once throws us back upon our own resources in nature and invention, and discourages and forbids copying. It had been fortunate for English art, if there yawned as wide a gulf between British and Italian institutions and usages.

We use these elements because we have a right to them; they are not the exclusive property of antiquity; nature is the only principle or element of imitation, the regulating type of architecture, and the basis of all true design; the principles of beauty in nature and those developed in art are identical, and every rule of true art having its foundation in nature is common property. The type of the columnar and trabeated system existed in nature and necessity, and nature furnished or suggested its details and decoration; it is nature brought down through the Grecian mind, interpreted re-wrought for us, and is the property of humanity.

The three Greek orders, and the whole ordonnance or system would doubtless have appeared had the Greeks never existed; the natural types would have suggested it to other minds; it lay in the well of beauty, and must of necessity have been drawn up,—the destined task of the first refined and imaginative people.

The temples of the Greeks were peculiar to their climate and religion, and we have therefore no right to reproduce them; but the members, the mouldings, the elements of abstract beauty, which are used in their composition as the character of expression, are not so peculiar; adapted to all ages and nations and purposes, we are justified in their use. The simple and natural beauty of insulated columns, used as essential supports, the magic of peristylar perspective, must charm while a perception of beauty, imagination, or feeling remains to man, and we are certainly justified in their use. A time cannot arrive, through whatever changes, when a Corinthian capital will not be beautiful; nor can any revolution in constructive science, arising out of new materials or otherwise, render the colonnade for every occasion improper, or altogether useless. Certainly the whole style or system, with the modification that common sense and good taste would always dictate, is adapted to all ages and to every clime. In this act or operation of adapting, there is nothing unnatural; the only way to surpass what has been done before is to avail ourselves of the labours of our predecessors, selecting, adopting, and adapting,—gathering the honey of beauty and truth from every flower that will yield it: we cannot be forever creating, but we can assimilate and adapt; adaptiveness is a natural faculty, one we are constantly employing in other things; we are, indeed, for ever adapting.

What we have to do, therefore, is to improve our privileges, and use our materials truly and judiciously. We are richly dowered: an Ictinus, an Apollodorus has wrought for us, as every truly great man has wrought for posterity; and Greece, and Rome, and Italy are ours. The Italians added many valuable features to the original stock; and the Roman architect-



ture, though it wanted the purity of the Greek, and was too much like the luxury of their lives, is not to be despised. Our task now is to analyze all, through all styles to trace the principle of beauty, life, and truth, that we may use them aright; to gather and concentrate the rays shed by various minds, at various times, upon the true principles of art and science, for the due clothing of our ideas of to-day with form and expression. After all, it is but dress—the vesture of a thought. We want the most beautiful and appropriate dress for present ideas, but the quality of the ideas themselves, the power with which they are expressed, and the skill in using the materials, are the most important considerations, as knowledge depends more on the clear conception of the idea than on the beauty or character of its signs. Nothing is valuable that contains no definite idea, if it be not the expression of a thought: when we have mastered all styles of architecture, still we have learnt but the rudiments. "Materials in architecture," says Sir William Chambers, "are like words in phraseology, which, singly, have little or no power, and may be so arranged as to excite contempt, yet, when combined with art, and expressed with energy, they actuate the mind with unbounded sway." A good poet can move even with homely language; and the artful disposition of an able architect will give lustre to the vilest materials, as the feeble efforts of an ignorant pretender must render the most costly enrichments despicable.

The objection urged against the employment of a foreign style in English buildings is, therefore, unphilosophical, and can arise only from prejudice of education and narrowness of view. We attach too much importance to style, which is only what the body is to the soul—the vesture of the author's idea—the formal expression with which the informing spirit is endowed, and by which it is made manifest. On this subject the most erroneous opinions prevail: a friend of the writer, speaking once of St. Paul's Cathedral and Blenheim House, said, "he looked upon such productions as he looked on the *Æneid* of Dryden or the *Dante* of Cary, as standard architectural English translations, highly commendable for their felicity of interpretation, but as nothing further." Here is neither less nor more than an inversion of ideas of matter and spirit: so far are these edifices from being translations merely, into English, of foreign architectural ideas, that we may consider them English, both as to ideas and language, in the proper sense of the word. The language, it is true, was derived from Greek and Roman sources, but by thorough digestion made our own: our own, though the root of the words, (to continue the comparison) be in the Latin and Greek; and, as we enrich our vernacular tongue by foreign words, so we may increase our elements of design from other styles.

From no remarks here made can it be supposed that I am advocating anything like a merely conventional art; we must have a true and living architecture, however derived. I can conceive a system thus framed so exactly suited to our purposes, to our manner of life, so fertile and varied in its decorative resources, so capable of every possible and desirable shade of truthful expression, that its results in stone, from the hand of the genuine artist, would seem like sentient beings. They would be instinct with a purpose, "vascular and alive": "cut them, and they would bleed." The law of causality would be traceable, not merely in them but throughout them, the parts seeming to grow out of each other and in strict relation to the whole. In short, they would speak and breathe, for the tide of intellect and life had rushed through them. From the decorative department of this art system, the gods of the heathen mythology would be driven out as demons, and it should be consecrated to our own history, literature, and religion. The architect, I am well aware, must not be merely an antiquary, or an abstract thinker; he must know and feel his position, a man "related to the world," with a heart in unison with his age and country. He must be imbued with the spirit of the time, its science, its ethics, its other arts—all must pass into his mind, fructify, and appear again in his conceptions. Abstract thought will not produce true vital architecture; like the tree or plant in the soil it must be rooted in life,

and derive its nourishment through innumerable channels.

I am also well aware that it is not to this effect that the antique elements have been applied during the last half century. I fully admit the fact that we have been slavishly imitating, and otherwise misapplying our treasures of art. There has been a vast amount of copying, and that of a very superficial kind; copying, too, of buildings utterly unworthy of it,—possessed neither of intrinsic beauty, inspiration, nor truth. There have not been wanting men, and men of education, so abject their spirit of veneration, so blind their idolatry, that, left to themselves, would have imitated anything consecrated by antiquity. We have had architects amongst us who would have reproduced the inclined towers of Italy, had patronage served, or public taste tolerated.

But this will not much longer be the butt of criticism. The day of mere copying, if not over, is certainly drawing to its close. If the voice of one wise man, as some one has well remarked, be always the voice of an awakening multitude, the people must be growing alive to its absurdity, for many a voice has already been heard against it. We need no deep discernment in art to convince us of its absurdity. The common sense of mankind is opposed to it, and the architect will now be left without excuse, for he may use his own judgment, and throw off the fetters of style, without fear and without reproach.

How it came to be so long tolerated may be a subject for speculation to posterity: the imitation of Greek religious ceremonies in a Christian community would not be much more absurd than the reproduction of their temples. The imitation of what has been the effect either of chance, caprice, or of circumstances which cannot influence now, is so absurd, that the mere mention of it might be supposed sufficient, at any time, to operate as an exorcism. Besides, the man that yields himself up to copying, hides his talents under a bushel, forfeits the dignity of intellect, disclaims the name of artist, for he becomes a passive instrument, and does that which unconscious machinery could do as well, or better. Unworthy must that artist be of a seat among the demi-gods of fame who could stoop contentedly to this!

The misapplication of any architecture is only a proof of its being misunderstood. The architecture we imitated, if thoroughly studied, and traced to the time and moving circumstances of its origin, would have taught us better. The arts of Greece exactly reflected her political *status*, as did that of the Middle Ages the position, religious and social, of our forefathers. The valour and energy of the Greeks were breathed into their works, not into their architecture only; it was stamped upon their sculpture, and reigned throughout the fine arts. Their victories over the Persians had their part in the massive grandeur of their Doric temples, the air of dignity and sublimity reigning in which, are truthful reflections of the political and moral elevation of the people consequent upon their great and successful achievements in war. This spirit diffused itself in every part, a divine fury animating the forms of human art, gradually softening down, in subsequent works, and through successive changes, until it reached the extreme of Corinthian elegance and grace.

The same remarks, as I have just intimated, will hold good of the Gothic; but the devotees of that system are beginning, I suspect, to see their error, their views are widening, and it may be readily granted, that, when they are disposed to proceed in a liberal spirit, none will be more capable of working out its revival. Their past labours and researches will have enabled them to acquire some knowledge of the style. Men who thus devote themselves to ecclesiastical design, whether for Protestant or Roman Catholic purposes, if they work faithfully, reviving no obsolete feature, but adapting the Gothic elements to their present actual ritual, or mode of worship, be that what it may,—and such, I think, is already the aim of some,—we should bid "God speed." Let Gothic architecture be so pursued by our church builders, and it will be found partaking of the spirit of the time and country; and, gaining sustenance and strength from every source, to grow in their hands, and join rejoicingly the march of progress. If we refer to its history, we find it

always was so progressing: during four centuries, fed by new thoughts and drinking from the stream of advancing knowledge and taste, we beheld it in a continuous state of change from one phase to another. It went on "from strength to strength," speaking with its significant decoration, recording the annals of human progress, and reflecting the mind of its authors to after times, and it may do so again.

Among the causes of tardiness in the march of the art, is a feeling of hopelessness expressed by some writers on the subject of progression,—a feeling excited not by those palpable obstructions to which allusion has been made, nor, indeed, by any other; its origin must be looked for in a peculiar mental temperament. These prophets of evil are eminently mischievous; there is already a natural disposition in man to underrate the talents of the present time, as well as its virtue or happiness. It is said that the golden age never was the present one, and this aphorism is perhaps nowhere more strikingly exemplified than in architecture. Such despondency argues only narrowness of view, and can only exist among false ideas of the art, which may, indeed, be depressed, but cannot be destroyed, or lose its elasticity. Architecture, as a science, is essentially progressive; its tendency is irresistibly onward, for it is linked to the car of our destiny. As a fine art, it is an emanation of the soul, which is, itself, progressive. To architecture there is an influx of new materials with every onward step of science and progress of society. What has been beautifully said of life generally may be said of architecture,—"*It is girt round with a zodiac of sciences, the contributions of men who have perished to add their point of light to our sky;*" those, therefore, who think we cannot do anything like what our forefathers have done, understand neither the nature of the human mind, nor its indissoluble relation to the universe.

We need fear nothing for the art if we work truly with our materials. An Ictinus will not be wanting, nor a Phidias. It is true that a Pericles, a Trajan, an Augustus, in the shape of enlightened patronage, are also necessary; but no supposed failure in this particular should discourage us. In means and appliances we are richly dowered; we have matter for a glorious art. Clouds and darkness have hung over the subject, but many a gleam of intellectual sunshine has, of late, been shed, and the mists are dispersing. Thoughts stamped with truth are accumulating; principles are evolving; relationships of cause and effect, before unknown, or dimly seen, are discovered and acknowledged. Let us labour thoroughly to know our position, to illustrate and work out every principle, and so to understand our materials, that we may use them with propriety—that propriety which gives strength and meaning and grace—and acquire a discrimination of the different shades of expression. The architect should remember that all decoration must be reconciled to propriety before it can be fully invested with beauty. All complete enjoyment of an architectural production, on the part of the enlightened spectator, is critical as well as emotional; he must approve of it as well as feel its beauty. It must satisfy his intellect as well as please his fancy; be animated by the strength and force of propriety and fitness, and receive the approval of enlightened judgment, ere the graces and embellishments of art can have full sway on his imagination.

To produce such works labour is the prime means from first to last. Let us so labour as if labour were all, and trust nothing, to genius. "I know of no such thing as genius," said Hogarth; "genius is nothing but labour and diligence." Let us labour as if this were the entire truth. Let us study the great works of our predecessors, not to copy them, but to inhale their spirit, and catch their inspiration; to learn the secret of their power, and thus transfer their soul of beauty, not their individual material forms, into our works. An architectural, or other object of art, must be an image of thought, and whatever elements we use must therefore be recast into new combinations expressive of that thought, and consonant with new purposes. If this be done, we have no reason to despond, but rather to rejoice, though it be a rejoicing of hope rather



than of fruition. Those who despair for art know little of its real nature and design.

SAMUEL HUGGINS.

#### DEGRADED STATE OF ARCHITECTURE IN IRELAND.

It is time that attention be called to the present position of, and heavy discouragements under which the architectural profession in Ireland labour—a position the degradation of which is severely felt by the individual members of it; yet, strange to say, they have taken no steps to remedy the grievances under which they suffer, or to denounce the causes of them. There exists in Ireland a body calling themselves the Institute of Irish Architects, who meet in Dublin, and for what earthly purpose they hold together I am unable to discover.

The use of an architectural association, as far as I can understand, is for the conservation of the rights and usages of the profession; to raise, elevate, and ennoble it by imbuing its members with a love of art, and creating amongst them an honourable enthusiasm and emulation in practice; to preserve the boundaries and landmarks of the profession from unjust encroachment.

Has the Institute of Irish Architects effected any of these objects? I trow not: if they have, let them show the fruits. They have allowed acts of gross injustice to be perpetrated against the profession without a single protest, and though several years in existence, the profession is in a lower position now than at any time for the last fifty years. This present low state of architectural practice is a subject of complaint amongst all men of taste, both in and out of the profession; yet no effort is made to get rid of the cause of it.

Our national architecture has been the fruitful theme of tourists and visitors at all times, and upon which they have rung the changes to some purpose: "from Cape Clear to the Giants' Causeway, and from Connemara to the Hill of Howth," the stranger sees nought in our towns and cities but abortions of churches, court-houses, banks, club-houses, &c., evidencing an absence of all taste and propriety, and a positive retrograde movement; instead of the noble progress that marks the profession where it is not tied down and trammelled, bound hand and foot, and delivered over to the custody of Ecclesiastical and Poor-law Commissioners, to be treated according to their fancies, and by them handed down to posterity, stamped with the impress of illiberality, sameness, and mere utilitarianism.

The principal cause of the present low state of architectural practice in Ireland certainly is the poverty of the country, and the absence of those wealthy and liberal patrons who in more favoured lands stimulate the industry, and call forth the energies of all artistic talent. The aristocracy of this country for the last twenty years have been verging to, and are now in, a state of complete bankruptcy; and they ought to have been the principal patrons of art, who ought to have fostered by their wealth and influence the rising talent of the country, are now, comparatively speaking, a beggared class.

In Ireland there is no remodelling, improving, embellishing, or rebuilding of stately mansions, of lordly castles, or luxurious villas; no endowment and erection of churches, chapels, school-houses, colleges, charitable institutions, by the liberality and munificence of the wealthy, pious, and charitable: the consequence is, these fruitful sources of honour and emolument are sealed—to the Irish architect.

Indeed, amongst the landocracy of this country, there never was a taste for the elegant embellishments of life; their mansions in most instances were poor and unarchitectural, large but unmeaning, roomy but inconvenient; the architect was rarely consulted in their erection; the uncultivated whim of the owner, the taste of the steward or agent, and the executive of the estate mason and carpenter, directed the outlay of thousands of pounds, to the perpetuation of the most absurd monstrosities of form, and of the most vicious errors in construction. I could mention the names of twenty of the gentry in one county, whose mansions would not be inhabited by a city merchant or shop-keeper, so mean, so uncomfortable, so devoid are they of all those elegant appliances

of taste, convenience, and luxury which should characterise the abode of aristocratic wealth.

Absenteeism, the bane of unhappy Ireland, has also been another barrier to architectural progress. In Ireland, the wealthy proprietor considers it derogatory to his dignity to reside on his estate, in his own mansion, surrounded by his dependants, spreading comfort and happiness around: they fly from the land that nurtured them, and drag from her vitals that wealth which they unsparingly squander elsewhere,—and which would be far more honourably, rationally, and usefully bestowed in rebuilding their ruined mansions at home, beautifying them with painting and sculpture, and collecting around them all that art and genius can produce when stimulated by the well-bestowed patronage of wealth and taste.

I have in my mind's eye the habitation of one of these absentees, a gentleman of princely and, I believe, unencumbered fortune, owner of one of the most magnificent domains in the world, upon the banks of a noble river: he spends his whole life amidst the vices and frivolities of the cities of the continent; his mansion at home is not worthy the name, so wretched, old, mean, and filthy—parts of it little better than a hogstye; a sitting-room, and a couple of bed-rooms, with old and tattered furniture, just enough to accommodate the agent for a few nights, when he comes to get his rents, or a week's shooting and fishing in the season, were the only habitable portions of it. I went to look at the out-offices; the roofs were fallen in, walls were bulging out, and the courtyard, overgrown with weeds and nettles, presented an aspect of utter desolation and desolation, painful and oppressive, and conveying a strong corroboration to the mind of that truism of Drummond's,—“Property has its duties as well as its rights.”

To whom next has Architecture to turn for that patronage and encouragement which the landocracy cannot or will not give it?—to the princely merchant, the millionaire manufacturer, the wealthy and liberal shopkeeper or tradesman? Alas! we have no such class in this country. Without manufactures, without commerce, our merchants and shopkeepers in most instances struggle for a bare existence; the last years of famine and general depression have almost ruined the industrious classes, and drained the country of its capital.

Seeing thus how scanty are the sources of wealth and private enterprise, our last appeal is to public employment—to those sources supplied by the Government of the country, by public bodies or companies, and religious communities, as churches, and all other places of worship, conventual buildings, charitable institutions, court-houses, gaols, and municipal buildings. Let us see what benefit the architectural practitioner derives from these; and, first, as to religious edifices, we shall consider how those are disposed of which are erected for the use of the members of the Irish Church establishment.

The designing and erecting of new churches, the altering and remodelling of old, should be an interesting, ennobling, and fruitful field of practice to the Irish architect. Is it so? I trow not. An enlightened, liberal, and art encouraging Government has handed over into the hands of the Ecclesiastical Commissioners the designing, erecting, and entire management of all the churches of the Protestant Establishment in Ireland, so that the said members of the Establishment cannot have a single church erected except planned to suit the taste and views of the Commissioners' architect, whose taste may or may not be of a very high order.

From such procedure you cannot expect much excellence in Irish Church Architecture, and you are not disappointed; there is no variety of design, little evidence of deep thought, profound study, and patient elaboration of form and effect: travel the country from Dan to Beersheba, examine all the churches erected under the commission for the last ten years, and a more disgraceful, unchurch-like, and ill-conceived class of edifices you will not match in Christendom; you will see the one idea run through the whole of them, the same detail repeated *ad nauseam*, the same depressed roof, the same lancet window, the same Patrick's\*

\* A circular painted ornament worn by children on Patrick's day, which these make-believe rose windows vastly resemble.

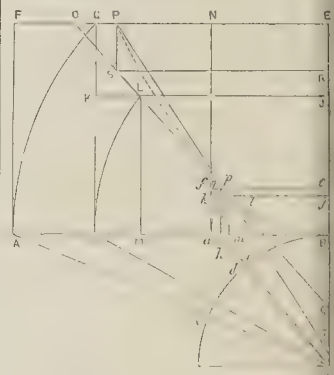
cross stuck over the entrance-door in the west gable, the same nondescript looking bell-cot, plainly showing by its mannerism, to the least initiated, the adoption by the Commission of that wholesale system of designing so unwise, so unartistic, and so unjust.

Had the Commissioners acted with “zeal for the glory of God and the good of the church”—had they acted justly towards the profession, they would have given to the young and struggling artists that are now to be found in the land opportunities of designing these churches, which would, under emulative enthusiasm, have arisen in beauty and harmony to gem the green valleys, romantic glens, and sunny hill-sides of our island.

I shall not now stretch this article to a greater length. I shall return to the subject by taking up the Poor Law Commission, the national and agricultural schools, and other fields of architectural practice, which are also as complete monopolies as that alluded to above.

THE CLT.

#### THE COMMON CATENARY AND NAPIER'S LOGARITHMS.



Let the tangent AB represent the length and weight of the chain, the radius BC the constant horizontal tension; then the secant AC represents the tension at the points of support.

Make CD equal to CB. Upon CB produced set off BE equal to AD. Make AF = BE, FE = AB, HG = AF, HB = GE, BJ = HI, HK = BJ, KJ = HB, JL = HB, GN = NE, and AB = NE.

Repeat the operations with respect to the point A. Draw OL/pQ. Make QR = twice Qe, RS = twice pe, PS = RE, and PE = RS. Draw PpT, making TE = twice Te, and TQ = RE.

Now imagine the secants AC and aC first to coincide with the radius BC, then to increase together continuously, the lines PE and pe also to increase together continuously from the zero point B, the points P and p to trace the curve BP and the portion Bp in the same time; the curve so conceived to be generated is called the common catenary, and is the line of equilibrium of an ordinary chain. The lines PE and pe, the radius BC being unity, are the hyperbolic logarithms of AB + AC and aB + aC, for by the construction PE is to pe as two to one, and AB + AC is to aB + aC as a square to its side, or as a numeral to its square root.

The lines GE and LJ indicate the position of the point P.

J. P. W.

#### CLASSIC ORDERS IN ROMAN CEMENT.

MANIFOLD are the opinions afloat amongst the cognoscenti on the subject of materialism in construction, and with so much sounding, if not sound, reasoning are they asserted, that it is hard to withhold acquiescence in the theory of each successive disputant. One says it is uncandid to portray the articulations of masonry in a plastic and sham superficies; another that it is dishonest; and a third that it is an outrage on Bath stone and Inigo Jones! whilst a fourth avers that the tracery and ornamentation are meagre and deficient of that sharpness which the accuracy of the chiselled



stone always exhibits; but all admit that the general character of street architecture and the especial merits of suburban villa elevation have been wondrously improved by the innovation.

Now, to ordinary observers, this latter result bears with it a strong argument in excuse of the sham.

The cheapness of cement, its great durability, if good, the boundless variety of beautiful model castings, the facility and celerity of progress in the finish, give to this mode of accomplishing a fair and finished cuticle an advantage in this our age of economy and utility. What signifies it to the visual observer of an elevation how many blocks go to the formation of an arch? or whether the projecting griffin in the key-stone, or the monk in prayer loling out his tongue, be really graven on a block which traverses the paries, or is only the mask of piety in plaster? As to the assertion that the sharpness of outline may be deficient in the latter as compared to cunningly-wrought stone, the point may be conceded; but at the respectful distance of some thirty feet, the optics of ordinary observers can hardly perceive the difference, and were it not for the honest complexion of the genuine stone as compared to the waxy supericies of the mimic casting, even this would be a difference without a distinction. But at the same time the superiority of stone for ornamentation is of course freely allowed.

For private buildings, however, where the outlay is the paramount object, no one can question the fact, that the prevalent taste for diversity of style is greatly aided by the new and, if you will, the simulated plastic representative of stones. Look at Regent-street, the first innovation on the quarry—look at the terraces in Regent's park—examine St. John's Wood, and all the "alentours" of London, and then consider well before you pronounce a sweeping denunciation of dishonest imitations of the solid and the graceful.

Had we been limited to Bath, Portland, and Caen stone, where would have been our street architecture? where our entablatures, friezes, columniations? Should we not have yet had to gaze with saddened reflections on new Harley-streets, Gloucester-places, and Portland-places, instead of a Westbourne-terrace, a Carlton-terrace, Queen's-road, Notting-hill, and various other diverse, if fantastic, achievements, which relieve the monotony and dullness to which the wandering Oppidan was doomed, whose dreary meanderings were erstwhile limited to a migration from Finsbury to Montague squares?

Of performances in simulation of stone, instance might be made of an example between Coventry-street and Leicester-square, and to another and very different variety in edification which has lately sprung up in the Regent's-park, at the foot of Primrose-hill, namely, a terrace, as yet anonymous, but designed by Mr. Moore. Such performances are of infinite use in every point of view: like a new flower to the horticulturist, they give food to fancy, and offer to the propagators of the mystery another specimen from which the chances of diversity, both in form and colour, may be improved *ad infinitum*.

But all this has nothing to plead for the integrity of art. Granted: plaster is not stone, though it looks something like it. Yet whatever your structure, if it be solid and enduring, it is surely entitled to indulgence. As yet, we perceive no symptoms of decay in those specimens of cement which have been erected twenty-five years back. Can we say so much for Bath stone? I fear not. It is not necessary, nor perhaps fair, to request a lover of the quarry to cast a glance at the oft-renewed but mouldering tracery of the Oxford Colleges, or to view the delicate elaboration of Henry the Seventh's Chapel, Westminster: at the same time these being public buildings, the cost of material is of little moment.

Private residences are not built nor calculated to endure for ages; the transitory limit of leases (at most seventy-seven years) forbids this; therefore the cheaper the cost of construction the better, and any, the worst cement, will endure for such an interest.—please the district-surveyors as required and legalized solidity; but above all, please the public taste by diverging from rectilinear solidity, and by creating (although without the privilege of a

curve) some novelty that may impart an unthought idea, and impress variety on him who wanders through quadrangles.

As to the observations so artistically treated about styles, by your correspondent who alleges that "man is an imitative animal, that he copies the models of his ancestors, that he only can adhere to or mix the old orders, that he has not genius to invent anything new," &c., &c., that may be all good theory, but it is Greek to me.

What can it signify what he mixes, if the amalgam be good and pleasing? Construction altogether originated from material circumstances, that is, from the materials originally used, and from their adaptation to the uses of man; the column only represents the tree—the projection the traverse timber, &c.

That the inhabitants of various regions should have peculiar characteristics in combination is also natural; for the requirements of climate dictate the form, and the products of the region prescribe the material. The Laplander burrows underground, the Indian plasters his wigwam—as the swallow sticks his nest against a wall, the wren weaves a rotunda, and the Builder-bird hangs hers from a righteous branch.

Strict adherence to first principles in art would be a clog on genius, and an obstruction to progress. Let us dismiss the sciolists, and go a-head in design.

If the combination of stone, brick, slate, tile, iron, and cement can be effected together with unity of colour, that unity without which (despite the Church of Sienna) no design is complete—then, I say, mix them. But above all, in street architecture, these combinations and the use of cement seem now indispensable; for, as the Irish bricklayer said, "Boys, our leases are short, so cement for ever."

QUONDAM.

#### SOME THOUGHTS ABOUT 1851.

MANUFACTURERS TO WORK!

WITHOUT any preparatory essay to test our own capabilities, in the fulness of our magnanimity, or rather rash confidence hording on swagger, we have challenged competition with all the world!

You said, and it has been repeated all over the country, "In the first round England has gone down!"

After the failure of 245 competitors in the design for the building, this section of the Royal Commission, comprising the architects and engineers among them, has issued a design and plan to be acted upon. It would be curious to learn, since it is sent into the world anonymously, who is really the architect, if any, who will eventually own the paternity of this proposed edifice, or if it will fall to the lot of some at present mysterious unknown to answer for its sins, and receive at the winding up the honorary distinction of having swamped the 245 competitors.

There can be no doubt but that the Exhibition must take place, and every probability of a monstrous dome being erected in the centre of the building. This feature of it, the size of which was first made appreciable by you, has spread alarm far and wide, lest the colossal structure should become permanent in Hyde-park. Public clamour will not suffer it to remain; and it may be asked what shall be done with it afterwards? I venture to suggest that it form a modification of Professor Hosking's proposition to enlarge the British Museum, by being re-erected in the inner quadrangle. If Government would engage to purchase it for this purpose, a great relief will be given to the pressure on the subscription made for the Exposition; the funds of which, at the present moment, scarcely justify the enormous outlay said to be required for the building alone. It would also be satisfactory, before contracts are made for double the amount of the money in hand, and be just towards present and future subscribers, to publish at the present time a balance-sheet, stating the amount already received in cash, the amount subscribed and not paid in, and on the other side the amount engaged to be paid in salaries, the expenses of the commission, &c. It will then be seen what we really

have to go on with, and we may judge what has yet to be collected.

In the midst of the outcry which has suddenly and foolishly broken forth against the Exhibition having its locality in Hyde-park, no one appears to have suggested Kennington Common, which is 17½ acres in extent, and could be enlarged by crossing near some mean erections into a space of very unimportant garden ground, covering at least 30 or 40 more acres. There is also another locality, which, from its position and good frontage, in the Vauxhall-road, might be available. I mean the lawn or park of Mr. Elliott (the brewer's abode), recently taken for making the new street to Westminster Abbey from Pimlico, and closely adjoining a great extent of space recently cleared out for the same purpose: but I agree with you in deprecating change.

Leaving this part of the subject, and diverting to another and a more serious matter, it being determined that the Exhibition shall take place, and that it shall be for all nations, it becomes consequently of the utmost urgency that all Englishmen should manfully enter the arena of competition, whether we are to be beaten little or much, or escape altogether. We have challenged the fight, and must show our pluck, if we fail in our strength: at least let us be able to say, as the *Roi Chevalier*, "We have lost all but our honour."

I heard Lord Brougham say, at the Westminster meeting, in Willis's Rooms, "When I first heard of the proposed Exhibition I had great fears for my countrymen, having recently had opportunities of testing personally the superior intelligence and instruction of foreign mechanics; but I became re-assured when I reflected that although they may beat us in ornaments and nicknacks, we should triumph over them in the solid, the substantial, the wearable, and the durable." I have since thought of such a material as "Devil's dust" to thicken woven woollens, and of the 250,000 quarters of wheat annually converted into paste to give body to our cotton goods, and begin to think it possible that our triumph will not be so easy over the flaxen fabrics of Flanders, the fine woollen cloths of Sedan or Vevoiers, the silks of Lyons, and the muslins and calicoes of Switzerland. Therefore, whoever among our manufacturers proves a recreant in the struggle, will infallibly be an enemy to the welfare of his country. It cannot and ought not to be concealed, that foreign manufacturers are active to show their products in England for the purpose of establishing a demand for their use. They are also backed by the assistance of their respective Governments, who are fully aware that employment for the working classes is the safe agent of political tranquillity. On our side, we are bound to see that we do not, by neglect, transfer a portion, either great or small, of the occupation of our industrious artisans to aliens, and thus strip our own hard-working mechanics of employment, and create its attendant miseries. We have never heard of a shopkeeper so insane as to invite a stranger who could offer better or more tasty goods, to open a shop for their sale close to his own. This will be very nearly our position, unless we awaken from our apathy and indecision which appear like the reaction of our first and violent burst of enthusiasm.

IDLER IN LONDON.

MULLIGAN'S STATUES OF WELLINGTON AND NELSON, on Southsea beach, being much exposed to wind and weather, and both of them having their heads uncovered, the impression on looking at them, either then or at night, is said to be one of discomfort. They are better adapted for a large hall or church than for such a position.

NATIONAL FREEHOLD LAND SOCIETY.—This society, established chiefly for the purpose of qualifying its members to vote at elections for counties, has recently purchased a large freehold estate, free from tithe and land-tax, situate at New Malden, adjoining the South-Western Railway, in the parish of Kingston, Surrey. Plans have been prepared, showing the subdivision of the estate into 275 allotments, averaging 30f. each in value, and the society are now actively engaged in forming roads, laying down drains, and other works, under the directions of their surveyor, Mr. Elkington.

\* That is, she was let down.—Ed.



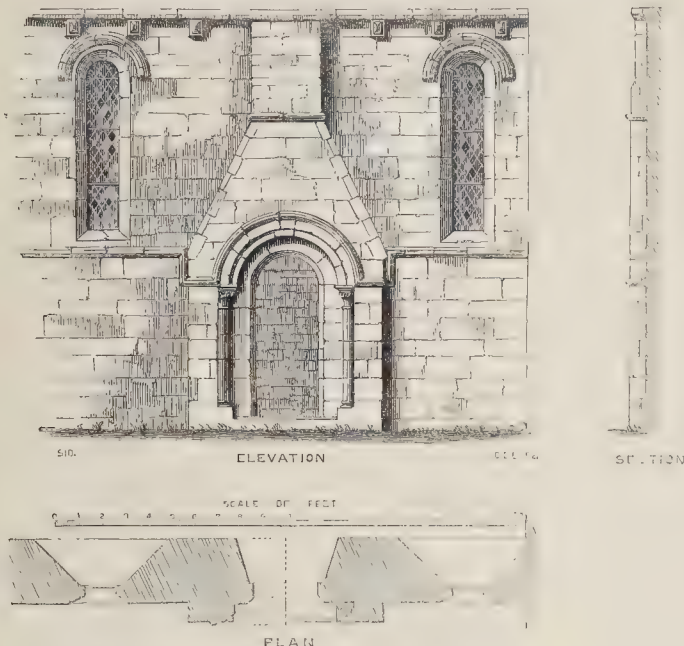


CLIEFDEN HOUSE, BUCKINGHAMSHIRE.—Mr. C. Barry, R.A., ARCHTCT.

25 10 0 40 60 FEET



## NORMAN DOORWAY, THORNTON CURTIS, LINCOLNSHIRE.



## CLIFDEN HOUSE, BUCKINGHAMSHIRE, THE SEAT OF THE DUKE OF SUTHERLAND.

It will perhaps be remembered that Clifden House, the seat of his grace the Duke of Sutherland, was burnt down on the day of thanksgiving for the cessation of the cholera. It is now in progress of rebuilding from the designs of Mr. Charles Barry, R.A., and annexed we give a view of the new edifice from a drawing by Mr. E. M. Barry. The terrace, which is 440 feet in extent, and the wings, were not destroyed, and are simply modified to harmonise with the new building.

The design exhibited at the Royal Academy shows attached Ionic columns with the entablature breaking round them, to which we objected in our review. This arrangement, it will be seen, has been altered: pilasters are substituted for columns, and the entablature is unbroken throughout.

All the principal rooms are on the ground-floor, and most of them face south. They comprise—

## FACING SOUTH.

Drawing-room .....	30 feet by 24 feet.
Library .....	30 " 24 "
Breakfast-room .....	24 " 20 "
Dining-room in west wing ..	36 " 24 "
Duchess's room, east wing ..	25 " 18 "
Duke's room, ditto .....	19 " 18 "

## FACING NORTH.

Principal stairs .....	21 feet by 20 feet.
Entrance-hall .....	29 " 23 "
Billiard-hall .....	30 " 18 "

The scale of the drawing is 20 feet to an inch. Both the upper stories are bed-room stories. The house is to be built of brick, coated externally with Portland cement. The panels are engraved to indicate fresco paintings on a dark ground. The contractor is Mr. Lucas, of Norwich.

Clifden House is situated in Buckinghamshire, about 2 miles from Maidenhead Railway station, on the Great Western Railway, and is about 24 miles from London.

THE BRIGHTON PAVILION GROUNDS have been opened to the public. During the first day many thousands entered the grounds, although no formal notice of opening was given.

## NORMAN DOORWAY, THORNTON CURTIS, LINCOLNSHIRE.

The accompanying engraving, from measurement, represents a Norman doorway, in the parish church of Thornton Curtis, Lincolnshire. It is on the north side of the chancel and is interesting, perhaps unique. The church itself is deserving of notice. The chancel is of Norman date, as is also the font, which is square and of good design. The other parts of the church, which consist of nave, north and south aisles, and western tower, are of early Decorated character. The piers and arches, with their caps and bases, are singularly beautiful both in their design and in the delicacy and freedom shown in their execution. The church is only a mile distant from that beautiful monument of skill and piety, Thornton Abbey, and from examination it appears probable that the same hearts and hands which have left the impress of their genius on that glorious shrine have, with equal truth, devoted themselves to its equally worthy, although more lowly, neighbour. The church is not encumbered with galleries, and its restoration would not be a work of much cost or labour. The worthy curate intends at once to restore the chancel arch, which has been entirely removed and its place supplied by a mean and unsightly arch of brick, and it is hoped that more extensive restorations may follow.

CHAS. VICKERS.

## ST. STEPHEN'S CHURCH, WESTMINSTER.

THE first stone of St. Stephen's Church in Rochester-row, Westminster, was laid July 20, 1847, and on that occasion we gave a view of the exterior of it, and of the schools, &c., adjoining.\* This church is now completed, and was consecrated on Monday, June 24, by the Bishop of London. It has been erected, as our readers may remember, at the sole cost of Miss Burdett Coutts. Mr. Ferrey was the architect, and Messrs. Rigby the contractors. No expense has been spared; stone, oak, lead (for the roof covering), stained glass, and encaustic tiles are the materials used, and the result is a building of very considerable beauty.

It consists of a nave 79 feet long by 21 feet

wide; north and south aisles of the same length, and 12 feet wide; and a chancel, 43 feet in depth by 21 feet wide. The height from the floor of the nave to the ridge of the roof is 54 feet, that of the chancel 40 feet, and that of the side walls of the aisles 20 feet. The tower, at the north-east angle of the nave, opens into the chancel by a moulded archway, within which stands the organ, the front presenting a screen of diapered piers. The chancel has a polygonal ceiling, divided into panels; the ribs are enriched by carved bosses, and the panels are coloured blue, and powdered with stars in gold. The walls are decorated with texts, and the reredos is composed of the Canterbury diaper, picked out in gold and colour. There are three sedilia. The chancel is paved with Minton's encaustic tiles, and fitted up with oak stalls on each side; the westernmost stall on the south side being advanced a little more towards the centre as a reading desk. The lessons are read from a lectern.

Over the chancel arch in the nave, the words "Glory to God in the highest, and on earth peace, good-will towards men," are curiously written so as to diaper the whole of the wall. The nave roof is of oak, and is divided by arched trusses and inter-ties, the arch principals resting upon stone capitals and triple shafts. The arcade is deeply moulded, and each capital of the clustered shafts has different foliage. The aisle roofs are similarly divided by ornamental trusses, and form arches in their design, the spandrels being filled with geometrical tracery.

The pulpit is of Caen stone: the base is plain, supporting an enriched corbelled front, and the sides finish in spandrels, filled in by tracery-work. The font, at the west end of the church, is ornamented by panels containing Scriptural subjects. The lambs at the foot should be improved or removed.

Many of the windows are filled with stained glass by Mr. Wailes, and the remainder very effectively with Messrs. Powell's stamped quarries.

Gas is used to light the church, and there is a very handsome corona in the chancel, consisting partly of gas-burners and partly of candle-sticks: this, with the rest of the metal-work, was wrought by Mr. Potter.

The carving, of which there is a great deal,

\* See Vol. V.



was executed by Mr. White: much of it is exceedingly well done; but parts, especially externally, are unworthy of the purpose.\* The dressings of the church externally are of Whitby stone, with the exception of the plinth, which is of Morpeth stone. The church affords seats for 850 persons, and has cost a very large sum of money.

#### ENLARGEMENT OF BRITISH MUSEUM.

YOUR correspondent "Zeta" intimates an impression on his mind that the effect of the interpolation proposed by Mr. Hosking of a copy of the Pantheon upon the present plan of the British Museum would be to interfere with, and thereby to injure the effect of the Grand Ionic Front of the building. The same idea had occurred to me, but upon trying the design in section from south to north, and taking the front of the Museum to be between 70 and 80 feet high from the level of Great Russell-street, I found that no part of the cupola over the proposed rotunda in the centre of the Museum (from 200 to 250 feet back from the front of the height stated in the description) could come into view with the grand façade in any part of Great Russell-street, from which alone the façade can be seen, at a lower level than the tops, or perhaps the top windows of the houses in that street.

It seems certain, indeed, upon reflection, that the cupola in this case could no more interfere with the front of the building than the cupola over the rotunda of the Bank of England (which no one ever yet saw from the ground) does with the front and grand façade of that building. EXAMINER.

\* In reply to another inquiry, the Trustees declined considering the proposition.

#### FIRES THROUGH FIRE-PLACES.

THE recent remarks in your pages on stoves are undeniable: the men who can sell and fix them cheapest being usually employed, the commonest article is used; it is fixed with a few bricks, and then filled in with rubbish, oftentimes containing shavings: one week's work in drying the house is sufficient to burn the stove through: the rubbish is ignited, the house burnt, and but few ascertain the cause. This is not theory, but experience. Fire brick is now getting much into use, and being a powerful conductor of heat, is, in the hands of unskilful men, a dangerous material, especially where, as is now often the case, the fire-place is partly of wood. A short time since I went over twenty-four houses, of ten, twelve, and fourteen rooms; only two or three chimneys in each had brick trimmers; the bed-rooms had boards laid on fillets nailed to trimming joists, and filled in with rubbish, and wooden chimney bars are not yet out of date. The allusions to hot-air stoves, with ascending or descending flues, are strictly correct; but the blame is seldom laid on the right parties: for instance, a person wants a stove for a shop, entrance-hall, or church; on applying to a respectable man, he is told that to do it with safety a brick foundation must be made, also a proper description of flue, either in iron or brick. He finds this comes expensive; he then goes to some cheap shop, or wholesale broker's, buys the last new puffed-up thing, and employs a tinsmith to put him a pipe to it: the stove is fixed without any preparation, the floor is fired, and the fault is laid on the stove, or the maker, whereas the fault lies with the employer. As a stove maker of nearly thirty years' standing, I will assert that a stove with an open fire and descending flue—acting properly (not drawing like an air-furnace)—can be put up only by men of experience. In the present day an old stove is puffed with a new name, and, without trial, pronounced to be the best thing ever made, and the purchaser, in most cases finds it utterly useless.

A STOVE-MAKER.

The perusal of your papers "On the Construction of Houses for the Prevention of

Fires," forcibly reminded me of an occurrence which took place under my own observation some years ago, corroborative of the reality of one of the sources of mischief from fire there enumerated, viz. the incautious employment of stoves on foundations of wood or other combustible materials, without the intervention of a sufficient non-conducting medium. While walking along the aisle of a village church, my attention was arrested by a splashing noise upon the pavement near me, and on directing my eye to the place whence the sound proceeded, I found it to be occasioned by molten lead pouring down through the joints of the boarded roof-covering on the rafters above. Scarcely a moment elapsed before this boarding burst into flame, which happily, from the proximity of a copious water supply, and the prompt measures for its application being adopted, was speedily extinguished with but trifling damage, but would, I doubt not, in the absence of these have resulted in the total destruction of the edifice. On the extinction of the above I ascended the roof of the church, and ascertained that the fire had proceeded from one in use by a plumber engaged in repairing the leads. This fire was contained in an open grate, standing on legs 7 inches high, placed in a sheet-iron tray, laid in contact with the roof covering of 6 lbs. lead. It had been in operation but a short time when the heat became so intense, that notwithstanding the interposing tray, the lead was reduced to a state of fusion, and the boarding beneath ignited, practically attesting the insufficiency of not only a sheet of iron or lead alone, but of the two together, for the protection of inflammable substances when thus exposed to the action of heat; and demonstrating the absolute necessity for the strictest caution and forethought being exercised by workmen requiring the assistance of fire, to prevent casualties of the most serious and destructive nature. W. B.

#### CHURCH-BUILDING IN HANTS.

**Widley Church.**—The church at Widley has been rebuilt, and was consecrated on the 28th ult. by the Bishop of Winchester. It is designed in the Norman style of architecture, and very plain: it is constructed of rubble, with Bath stone dressings, and consists of a nave 51 feet in length, and 17 feet 6 inches in breadth, a north aisle 8 feet 10 inches broad, a semicircular apse, a vestry and south porch; there is a bell turret on the west-gable and nave, containing an old bell from the old church. The nave and north aisle are separated by stone columns and arches. The roof is open and constructed of trussed rafters, stained oak colour; the height to the ridge is 32 feet in the nave. The seats are all low, and stained oak colour. The pulpit of stone is circular, and surrounded by an arcade of intersecting arches. The church cost only about 625*l.* raised by private subscriptions, exclusive of the old materials. It will seat 214 persons.

**Newtown Church.**—The new church at Newtown, in the parish of Soberton, was consecrated on the 27th ult. by the Bishop of Winchester. It is in style, "Early English," and is constructed of flint, with Caen-stone dressings. The church consists of a nave 60 feet in length, and 25 feet 3 inches in breadth; a short chancel 18 feet long by 11 feet 9 inches broad; a porch on the south side, a small vestry, and a bell turret, containing one bell, on the west gable. There are three lancet windows at the west end, with an early quatre-foil over the centre one, and a triple lancet window at the east in the chancel. The roof of the church is open, of high pitch, and composed of trussed rafters, boarded on the back, and stained oak colour; the height to the ridge is 43 feet, and to the wall plate 18 feet 6 inches. The seats are all without doors, low, and all free, and stained to resemble oak. The passages are paved with blue and red paving-tiles. The pulpit, desk, and altar-railing are simple. The communion-table is covered with a red cloth, on which has been worked in gold-coloured silk a device representing the emblems of eternity and the Trinity, enclosing the sacred monogram, and in each corner a fleur-de-lis by the wife of the architect. The church was built by Messrs. Pink, of Hambleton, and the cost is about 1,250*l.* It will seat 258 persons.

Both these churches were built under the direction of Mr. Colson, architect.

**Titchfield Church.**—The tower of this church is undergoing restoration under the direction of the same architect: the thick coating of plaster has been removed, and the churchwardens have decided that it shall not be renewed, but that the masonry shall be pointed, as it was originally. Nearly the whole of the masonry of the church is hidden in a similar manner, and it is hoped that in a short time funds will be collected to enable them to remove this also.

**Bishop's Waltham Church.**—The chancel of this church is about to be improved by the removal of the cumbersome square high pews with which it is at present crowded, and substituting one pew on each side of an appropriate character; by repaving the floor; by removing the clumsy reading and clerk's desks, and putting others of a more suitable description; and by putting an appropriate stem to the pulpit. It is in contemplation to throw open the timbers of the oak roof.

#### ST. BARNABAS'S CHURCH, SOUTH LAMBETH.

THE consecration of this church took place on Monday, June 24th: the ceremony was performed by the Bishop of Winchester in the presence of a large assembly and clergy of the neighbourhood. The building is in the Early English style of architecture, and is faced with Kentish rag, with Bath stone quoins, and dressings. The nave walls are carried up upon Caen stone columns, with carved caps; the chancel is a semi-octagon, with a window in each bay; the ceiling of the chancel is groined, but the building generally is very little ornamented; all the woodwork is of deal, stained and varnished.

The first stone was laid on the 17th of June, 1848, by his R.H. the Duke of Cambridge. The dimensions of the interior are as follows:—The entire length, including chancel, 102 feet, the entire width 57 feet, the height of nave 55 feet. According to our informant the galleries are constructed independently of the nave columns. Accommodation is provided for 1,500 persons, including children; and the cost of the building is 4,800*l.*, the work being executed by Mr. Myers, contractor, according to the drawings supplied by Messrs. Clarke and Humphrys, architects. The organ was built by Messrs. Hill and Son, of New-road, and being constructed in two compartments, allows of the light passing through the west window into the body of the church. The church has no tower or spire, but there is a bell turret surmounted by a pinnacle at the west end of the nave, at the junction with the south aisle.

#### NOTES IN THE PROVINCES.

A RATE has been granted for necessary repairs of St. Peter's Church, Bedford, previous to carrying out the proposed extension of the edifice. The tenders have been sent in, and that of Mr. G. H. Miller accepted. The rough stucco is to be scraped off the tower, the stonework pointed, and the unsightly window on the south side of it replaced by a Norman window. On the other sides, according to the local *Times*, similar windows may be afterwards inserted.—The new Corn Exchange at Brigg was opened on Thursday week.—On the 14th ult. the new Church of St. John, Kingsdown, Dover, was consecrated. The cost of erection and endowment (about 7,000*l.*) has been defrayed by Mr. William Curling. The seats are open benches, free, for 400 persons.—An eccentric gentleman of the name of Hartley has lately died at Havre, bequeathing property valued at from 20,000*l.* to 25,000*l.* to form a library and scientific institute at Southampton, whence he had departed when young, after locking up his house, furniture, garden, &c., which have remained ever since *in statu quo*, or, at least, without interference by him, having even refused either to let it or to receive the value of a portion of it taken under Act of Parliament by the Ichen Bridge Company.—A visitor to Stratford-on-Avon Church and Shakspeare's Tomb complains that although "the living" is a much more lucrative one than that of thousands of working and learned clergymen," the parish

\* Over the west door is a model of the church in stone, carried by an angel, as a sort of play on Miss Coutts's name, Angela; and in the corbels are water-lilies and coot-ducks, for a play on the word *Coutts*.



clerk is allowed to extract sixpence each as his demanded charge from visitors to the church, under pretence that "he receives no salary or other emolument." The complainant suggests that the exhibitor "ought at least to follow the example of other showmen by admitting children at half-price, and taking the money at the door before the exhibition commences." He should be thankful, however, that in the exhibition of the real tomb of so notorious a character as Shakespeare, in so interesting a church as Stratford-on-Avon, he was subjected to "no extra charge" whatever, such as Madame Tussaud would undoubtedly have exacted, on the Chamber of Horrors principle, could she have got hold of the genuine article before she went herself, poor lady, "down among the dead men." As to half-price, we do not believe that even in the great twopenny exhibition of St. Paul's, children have any such privilege. Why should they have it at Stratford-on-Avon, therefore, since the great central model establishment looks so respectfully down upon the rising generation as but so many little men and women, all at the "small charge of twopenny" overhead?—On Tuesday in last week the foundation-stone of a new church for 300 persons was laid at Tatworth, Chard, by the lady of the vicar.—The two painted windows presented by Mr. R. B. Phillips, of Longworth, have been recently erected in the Lady Chapel of Hereford Cathedral. They occupy the two window-arches on the south side, to the westward of Bishop Audley's chapel. The glass is supposed, by the *Hereford Times*, to be "of great antiquity, the ground-work being black tracery on a brown matter laid on to the glass; and therefore anterior to the general use of stained glass. The figures and devices, however, do not seem of equal antiquity with the rest of the window. The eastern contains in the head a seated figure, with the left hand held up, the thumb and two fingers being alone elevated." These windows were, we believe, formerly in St. Peter's Church, Hereford.—The improvement of the town of Liverpool is about to be decided on by suggestions, &c. from architects, engineers, or others.—St. Alban's Church, Limekiln-lane, Liverpool, was consecrated on Wednesday in last week.—The new Church of England Cemetery, at Sheffield, which occupies an area of about 8½ acres, adjoining the original cemetery, was consecrated on Thursday week. The ground was laid out by Messrs. Flockton and Son, architects, and planted under the advice of Mr. Marneck, of London. The new church connected with it stands with its tapering spire on an eminence adjoining, and will contain about 200 persons.—The new school at Glenorchy Chapel, Matlock-Bath, is now covered in.—Of late there has been quite a mania in Halifax for altering shop-fronts and putting in great plates of glass. The fronts of two shops had been pulled out last week, and cellars were at the same time being dug underneath. The upper part of the buildings were shored up as usual, but on Wednesday several ominous cracks were heard, and about tea-time the entire walls, floors, and roof (except the western wall), fell in "with a tremendous crash." As one of the shops had had a new front put in some years ago, it is probable the building was already much shaken. But surely the undermining work in the cellars might have been safely got through before the street front was pulled out.—St. Patrick's Cathedral, Dublin, has been re-opened, after being decorated, and 150 additional sittings provided.

#### DISTRIBUTION OF PRIZES AT UNIVERSITY COLLEGE, LONDON.

On the 29th June the prizes in the class of architecture, Thomas L. Donaldson, Professor, were awarded as follow:—

First year—(*Fine Art*).—Prize and first certificate, Chas. B. Thurston, of London; second certificate of honour—Francis Gompertz, of London; third certificate of honour—William Henry Nashe.

Second year—(*Fine Art*).—Prize and first certificate—Wm. Howden, of London; second certificate of honour—John Young; third certificate of honour—Wm. Allingham, of Bermondsey; fourth certificate of honour—Thomas Gundry, of London.

First year—(*Construction*).—Prize and first certificate—Chas. B. Thurston, of London; second certificate of honour—Samuel H. Blackmore, of Kingston, Herefordshire; third certificate—Francis Gompertz, of London.

Second year—(*Construction*).—Prize and first certificate—William Allingham, of Bermondsey; second certificate—William Howden, of London; third certificate—Thomas Gundry, of London; fourth certificate—George Legg, of University Hall.

#### SIGHTS AND SCENERY.

*Italian Opera House, Covent Garden.*—A finer sight and more stirring scene than this theatre presented on Thursday night in last week, on the entrance of the Queen, after the abominable attack on her by a cowardly scoundrel in the streets, was never witnessed. The opera was in progress, Meyerbeer's noble *Prophète*, and Viardot, Castellan, Mario, with Costa and his wonderful hand, were delighting all hearers; but band, singers, audience,—all ceased doing and listening to testify their loyalty and their love; and then came the National Anthem, which no Englishman can hear unmoved, and such demonstrations, loud and continued, as must have shown the Queen how fully she possesses the affections of her people. Right glad are we that we have a heading under which we, without departure from our path, may express our detestation of the act, and say, as we have often said before, "Long life to the Queen."

#### THE SEWERS COMMISSION AND ST. GEORGE'S, HANOVER-SQUARE.

At a vestry meeting of the parish of Saint George, Hanover-square, on the 4th inst. a petition to Parliament was agreed on, setting forth—

That the parish is suffering severely from the want of more perfect public sewerage, and consequently thereupon, from defective private drainage. That the amount of sewers rates levied in the Westminster district alone, during the last twenty-two years, exceeds half a million of money.

That between the 5th January and 31st December, 1849, the expenditure in the Ranelagh district has been—

	£	s.	d.
Works .. ..	3,622	9	4
Surveys .. ..	734	8	9

Management .. £4,356 18 1

1,994 8 11

The expense of management being 45l. 16s. per cent. on such expenditure.

And in the Western division of Westminster Sewers—

	£	s.	d.
Works .. ..	8,194	6	4
Surveys .. ..	1,667	9	0

Management .. £9,861 15 4

3,676 19 11

The expense of management being 37l. 5s. 7d. per cent. on such expenditure."

That the manner in which the account in abstract is laid before the public is unsatisfactory; "the total amount charged for the year's management being the enormous sum of 22,400l. 17s. 5d., forming about 26½ per cent. of the whole expenditure, although that excludes another charge of 8,339l. 19s. 10d., for surveys, &c., which your petitioners are of opinion should form part of the expense of management.

That the vigorous efforts made in 1847 to render the Metropolitan Commission of Sewers efficient, have not only proved utterly unavailing, but that, while under the new commissions the cost of management, as shown above, are enormous, the works of the commissions are less satisfactorily performed than heretofore; and that the petitioners mainly attribute the unsatisfactory proceedings of the old and present commissions to the want of a constitutional control by the rate-payers, and they therefore ask such redress as may seem expedient.

#### STRIKE ON SOUTH EASTERN RAILWAY.

The engineering workmen at the Bricklayer's Arms and Deptford stations, thirty-five in number, and comprising smiths, carpenters, coppersmiths, &c., as well as engineers, have struck work in consequence of a notice of reduction of wages from 38s. to 34s., 36s. to 33s., and 34s. 6d. to 30s. a week, suggested by a new manager.

#### Miscellaneous.

**THE SCRAPING PROCESS AT HAMPTON COURT.**—As you told me that a resident had contradicted my statement that the brickwork of Hampton Court is being scraped, I considered it my duty to make another visit to the spot, in order that I might ascertain the truth of my own previous impressions. A few days ago, therefore, I went over again to Hampton Court, and found that to one front of the gateway in question they had scraped the whole of the brickwork, some of the stonework being new and the remainder scraped. I could at once see that such was the case, but wishing to have a "resident" or two on my side of the question, I asked of one what had been done; he informed me that the brick and stonework had been scraped. A second "resident" not only said the same, but that the two fine terra cotta medallions inserted in the walls had undergone the same process. The scaffolding is now on that front of the gateway which forms part of the first quadrangle: the same work—not of restoration, but spoliation—is going on here, and will probably be completed in about a week. If the scraper is to go the entire round of the building there will be an end to that quiet grandeur which so particularly belongs to Wolsey's glorious old Palace of Hampton Court. There are old ladies and young ladies, ancient buildings and modern buildings. Antique ladies should not be treated as young ones, neither should old buildings as modern ones. Old ladies are ridiculous when dressed out like their granddaughters, and rouged and painted into the bargain; so also are old buildings spoilt when scraped, painted, or added to, with the desire of making them look young.—G. T.

**THE IRON TRADE.**—*Aris's Gazette* reports that "upwards of a dozen more furnaces have of late been put out of blast in Staffordshire, and that unless the present downward tendency be controlled, it is probable that in another month a still greater number will be in the same position." There is also a decided anticipation of quarrels with workmen about contemplated reductions of wages, so that the masters appear to be still in a very despondent state, notwithstanding a nominal sustenance of former prices till the principal quarterly meetings take place. Wages are lower in Wales, in the North of England, and in Scotland, than in Staffordshire, and, accordingly, whatever reason the workmen may have for complaint, the masters at least regard trade as there in a less unfortunate position. The reduction of make in Scotland, however, has been very extensive, and it is questionable, after all, whether trade be in any better position there in consequence of the lowness of wages. It is but justice to the Staffordshire masters to state that they seem to be very reluctant to have any misunderstanding with their workmen by lowering wages, however unenviable their own present position may be.

**STEEL PENS.**—For producing steel pens the best Dannemora Swedish iron—or hoop iron—is selected. It is worked into sheets or slips about three feet long, and four or five inches broad, the thickness varying with the desired stiffness and flexibility of the pen for which it is intended. By a stamping press pieces of the required size are cut out. The point intended for the nib is introduced into a gauged hole, and by a machine pressed into a semi-cylindrical shape. In the same machine it is pierced with the required slit or slits. This being effected the pens are cleaned by mutual attrition in tin cylinders, and tempered, as in the case of the steel plate, by being brought to the required colour by the application of heat. It unfortunately happens, however, that the process of tempering, upon which entirely the quality of the pen depends, is in most cases most carelessly performed. Some idea of the extent of this manufacture will be formed from the statement, that nearly 150 tons of steel are employed annually for this purpose, producing upwards of 250,000,000 pens.—*Art Journal*.

**MASTER CARPENTERS' SOCIETY.**—The 75th anniversary meeting of this society was held at Richmond last week, when about thirty of the members dined together and spent some pleasant hours. Amongst them were Messrs. Higgs, Stephens, S. Bird, Geo. Bird, Eales, Gooch, Nesham, Locke, Biers, Norrie, &c.



**GAS FROM WATER.**—If there be any truth in the details of the *Boston Daily Transcript*, whence the following extract is gleaned, the gas companies may rejoice in the hope of being able to supply the general public with gas as freely, as abundantly, and certainly as cheaply, as the water companies can supply water. Many, no doubt, might be induced to prepare their own gas, even in private houses, were the companies to fail in the expectations to which such an alleged discovery might lead; but this the main body of the public are by no means likely to do, if liberally dealt with by the existing companies. The details in question relate to a reported discovery by a Mr. Paine, of Worcester, U.S., already notified in *THE BUILDER*. "Mr. Paine does not claim the discovery of decomposing water, but he does claim the discovery of a new principle of electricity, by which the decomposition of water is very rapidly produced, at a merely nominal cost."

\* \* \* \* \* The entire labour required to make a day's supply of gas for a common dwelling-house does not occupy two minutes in turning a crank; and the machine takes up about as much room as a common mantel clock. Writing upon this subject, Elihu Burritt says:—"There is not only a saving of expense, but of work, and the inconvenience and care of wood, coal, and ashes, and the danger from fire are almost completely annihilated. This is not supposition: we saw the lights, followed the pipes to the cellar, and saw the apparatus employed for the decomposition of the water; and we must say we can hardly find words to express our astonishment at the simplicity of the machine, when, at same time, we think of the greatness and grandeur of the discovery. This must rank, if not above, certainly equal with, the greatest discoveries and inventions of the age. Wood, coal, and oil, and fluid may all be dispensed with by the use of Mr. Paine's apparatus." Mr. Burritt further says—"Two jets such as were burning in his house would be sufficient to light a moderate-sized hall every night, at an expense of the interest on the cost of the machine (about six dollars per annum), with only the little trouble of occasionally filling the water cistern." It is understood that Mr. Paine has disposed of his proprietary right to his discovery for a sum which may at first seem incredible. The terms of purchase are reported to be five millions of dollars, half a million down. Mr. Paine is expecting a visit from the committee on gas of our city government, at Worcester, to-day, to look into this matter."

**FEES FOR VALUATION OF PROPERTY.**—Messrs. Shuttleworth and Co., the auctioneers, have recovered, in the Court of Exchequer, the full amount of their charges for trouble and outlay, as valuers, in estimating "that John-street Chapel, near Doughty-street, was worth, from its pew rents, 350*l.* per annum, which, at twenty years' purchase, gave a value of 7,000*l.*; that the value of the land was 1,600*l.*, and that the value of the old materials for building purposes was 1,200*l.*, which, deducted from the 7,000*l.*, left a sum of 5,800*l.* as the actual value; that five houses of the higher class could be built upon the land, at a cost of 850*l.* each, to yield an annual rental of 60*l.*, and five of the smaller class for 300*l.* each, to give a rental respectively of 25*l.*" The defence was that the charges were exorbitant, and 25*l.* had been handed into court as full payment. The jury consulted for a few minutes only, and then returned their verdict for the plaintiffs, damages 57*l.* 7*sh.*, including the sum paid into court.

**THE NEW SOCIETY OF PAINTERS IN WATER COLOURS.**—We are glad to learn that her Majesty has been pleased to mark her approbation of this exhibition by purchasing Mr. Warren's Egyptian picture "The Wise Men from the East," and Mr. Corbould's "Fiorette de Nerac."

**ILLEGAL PRACTICE AMONGST NAILERS.** At Handsworth Sessions, a nail manufacturer, of Harborne, charged a workman with leaving unaccounted for five bundles and seven quarters of rod iron, worth 20*sh.* He stated that he had at present ten tons of iron in different hands unaccounted for. The late strike had perhaps something to do with it. Defendant pleaded guilty. Finally complainant gave two months to make good the deficiency, and the bench, admonishing the defendant, adjourned the case.

**BRITISH ARCHÆOLOGICAL ASSOCIATION.**—At a meeting on June 26, Mr. S. R. Solly, V.P., in the chair, Chevalier Zahn exhibited a series of his litho-chromatic plates, from the frescoes and mosaics of Herculaneum, &c. already mentioned by us. Mr. Planché read some interesting documents relating to the early history of Leadenhall and that neighbourhood, showing how the property in that part of London came into the possession of the Nevills, in 1809, they being the first possessors mentioned by Stow. Mr. A. White exhibited a curious carved boss, formerly in the east cloister of the Priory of St. Bartholomew the Great, in Smithfield, which he had rescued from destruction some time since. It represents an Abbot, or Prior, and an Abbess, standing face to face, with their staves over their shoulders, and holding up a beam of wood which passes longitudinally before the two figures. The subject here represented caused considerable discussion; Dr. Bell supposed it might have reference to the Premonstratensian Order, founded by Norbert, of Magdeburg, which ordered that each foundation should consist of a monastery and convent under the same roof, under the rule of the Abbess. It was likewise suggested that the female figure might be the representation of some benefactress, especially as there are indications of a coronet on the head. Mr. W. brought the general history of the priory and hospital before the meeting, and illustrated the subject by plans and drawings. The consideration of this subject was adjourned to the next meeting, and a day fixed for a visit to the remains of the priory.

**DIOCESAN TRAINING SCHOOL, DERBY.**—The foundation-stone of this institution for the training of schoolmistresses was laid last Saturday week. The building, in design, is in accordance with those of James the First's time. The walls are of brick, with stone dressings. They are to be four stories in height, with basement only partly open. The principal entrance is through a porch rising two stories in height, with groined vestibule, on the right of which is a dining-room, 28 feet by 19, a chaplain room 20 feet by 14, and two class rooms, each 20 feet by 16. Wide corridors extend on the several stories from east to west, with access to all the apartments. There are dormitories for forty teachers, and accommodation for the principal and other conductors of the establishment on the two upper stories, and on each floor are bath-rooms, infirmaries, and water-closets. A ventilating shaft will form a prominent feature in the outline of the building, and the corridors, staircases, and entrances are to be warmed on Price's plan. The contract was taken by Mr. G. Thompson, and the works are in rapid progress for completion by the 1st of June, 1851, at an entire cost, including site and furniture, of nearly 7,000*l.*, raised by grant and subscription. Mr. H. I. Stevens is the architect.

**THE NEW KINGSDOWN SCHOOL AT BATH.**—This building, the foundation stone of which, as already noticed, has been recently laid, is to occupy an area of about 15,000 square feet, in form of the letter H., with ground-floor and two upper stories. The principal elevation and entrance face to the south, with tower in the centre rising 82 feet above the highest level of a series of terraces. The style is perpendicular and domestic. The total frontage is about 210 feet, exclusive of an intended chapel, but including the two wings projecting 55 feet. The material is Bath stone. There will be accommodation for 150 students, sons of Wesleyan ministers. The whole building is to be warmed and ventilated by air-apparatus, wall flues, and valvular gratings, with culverts leading to the tower, the whole apparatus being used with cold air in summer and hot air in winter. The designs were furnished by Mr. James Wilson, and the work is being executed under his superintendence by Mr. James Vaughan, of Bath, builder.

**VICTORIA-STREET SEWER.**—Among the Parliamentary papers is published an estimate of the cost of the new sewer in Westminster. The contracts are two in number. The first, already in progress, is for a main brick sewer 3,982 feet long, 2,010 feet of it 5 feet 6 by 3 feet 10, the remainder 5 feet by 3 feet 3. It runs from Parliament-square, near Bridge-street, through the Broad Sanctuary, and along Victoria-street to near King's Scholars' pond

sewer at Shaftesbury-terrace, Pimlico; estimated cost, 5,082*l.* The second is for two lines of main brick sewer, one 2,150 feet long, and 6 feet by 4 feet 3 in sectional area, commencing near Percy-wharf, and extending across Scotland-yard, Whitehall, and Parliament-street, to Parliament-square; and the other 300 feet long, and 8 feet by 5 feet 3 in area, extending also from Percy-wharf to Whitehall-place, with an outlet at low water built of timber, 400 feet long, for discharging the sewage temporarily into the river; estimate of second portion, 8,272*l.*

**INSUFFICIENT IRON COLUMNS.**—A fatal accident occurred last week at a workshop in the London-road, Southwark, formerly belonging to the Philanthropic Society, by the sudden bending of the iron columns supporting the beams and roof, and the fall of the whole building in consequence. One man was killed, and several others were severely injured. The cause of the accident appeared to be inexplicable. We hope, however, that by this time something has been done in the way of inquiry or examination, to account for so startling a catastrophe.

**ARCHITECTURAL PUBLICATION SOCIETY.**—The committee are soliciting assistance towards the supply of materials for the letter-press and illustrations; and they suggest the early payment of the subscription, to enable them to make the necessary arrangements with certainty. We need not urge the advantage that would result to the society, if every member would obtain at least one other subscriber: this would of course place the society in a position much more favourable to the members individually, by enabling the committee to issue in each year a greater number of works.

## TENDERS

For a Warehouse in Eastcheap, under Mr. Edmund Woodthorpe, Architect.

Brown .....	41,865
Asby and Co. ....	1,857
Piper .....	1,835
Asby and Son .....	1,830
Jay .....	1,828
Locke and Nesham ..	1,795
Grimsdell .....	1,752
Tregg .....	1,589

For a new Church at Caulton-on-Trent, near Newark. Mr. George Gordon Place, Architect.

Flaher and Co., Southwell .....	£1,653
Nevill, Southwell .....	1,043
Bennett, Nottingham .....	1,320
Buttery, Caulton .....	1,431
Shelbourne, Collingham .....	1,333
Lee and Smith, Nottingham ..	1,234
Jillibert and Dixie, Weyly .....	1,283
Simpson and Brown, Nottingham	1,233
Ferguson, Nottingham .....	1,237
Tinken and Huddleston .....	1,149

For the erection of a Chapel and Schools, Southgate-road, Kingsland. Mr. Tarring, Architect. Quantities supplied by Messrs. Chas. Fowle and T. C. Tarring.

John W. Vane .....	£1,131 0 0
Stas Homeveel .....	4,381 0 0
Locke and Nesham .....	5,121 0 0
Hopkins and Roberts .....	3,050 0 0
Haynes and Co. ....	4,049 0 0
Myers .....	4,018 0 0
Wm. Higgs .....	4,426 0 0
Wm. Smith .....	3,063 0 0
Holland .....	3,748 10 0

For a new Warehouse for Messrs. Dent and Co., Wood-street, Chopside. Mr. John Wallen, Architect.

Asby and Son .....	£7,364
Jay .....	7,730
Lee and Son .....	7,713
Piper .....	7,035
Tregg .....	7,373
Grimsdell .....	7,375
Lawrence and Sons .....	7,554
Thomas Burton .....	7,336

## BUILDINGS AND MONUMENTS,

MODERN AND MEDÆVAL;

*Being Illustrations of the Edifices of the Nineteenth Century, and of some of the Architectural Works of the Middle Ages.*

By GEO. GODWIN, F.R.S.,

Fellow of the Institute of Architects: Corresponding Member of several Societies.

The Eighth and concluding part of the above work is just published. It contains—The Olympic Theatre, London; St. Aidan's College, Birkenhead; Kneller Hall Training-school, Whitton; Portal of St. Laurens Church, Nuremberg; Bishop Alcock's Chapel, Ely Cathedral; Lincoln Cathedral, east end; St. Mary's Church, West Brompton; and the New House of Commons, Westminster; also an Index.

The work will be issued as a volume, handsomely bound, forthwith.

To be had at the Office of "The Builder," 2, York-street, Covent Garden, or, by order, of any Bookseller.











# The Builder.

No. CCCLXXXVIII.

SATURDAY, JULY 13, 1850.

MUCH of our readers as are inclined for a ramble, and disposed to forget for awhile the Building in Hyde Park, the question of Copyism, the lethargy and close-door doings of the sewers' people, and other amusing and light topics of the day, will probably not object to make with us a short excursion from Oxford, the city of colleges and halls.

Instead of going to Silchester, to see its walls and earth-works, with the main body of the Architectural Institute, the other day,\* we had a delicious float on the silver Isis (that is, the Thames, before it is spoilt), with a dozen merry knowledgeable men, not afraid of enjoying themselves. Several of them were architects, one was the vice-principal of a college, two or three were *littérateurs*, and all were staunch lovers of "the ways of hoar antiquity," especially of those which are "strewn with flowers," and entered fully into what they were about. They thought with Dr. Combe, who says, in one of his letters recently published,—"If we listen, let us listen with our whole powers; if we play, let us play with consentaneousness of action among the faculties; if we read, let us do it in the same way; if we hear of something affecting other people, let us try to enter into it as if it were our own. A vigorous and most useful command of mental power will thus be attained which is infinitely more valuable than any amount of mere knowledge."

A horse-boat from the Folly-bridge received the party, and though they left the bridge behind them they would not give up him of the cap and bells, after whom it is named, maintaining that those who would always seem wise are very foolish. It was one of those days when, as many writers have said and every body has felt, it is happiness enough merely to live. The sun positively flooded every thing with light, and Zephyr, to be mythological, was kind enough to come out at the same time, and prevent him from being disagreeable. The birds gladdened the ears, the breezes refreshed the sight, and the newly-made

\* Those who did go to Silchester saw, outside the wall, near the north-east angle, the remains of a Roman amphitheatre, which, it is supposed, was sufficiently capacious to accommodate 10,000 persons. They saw that the city originally had four gates, standing exactly north, east, south, and west, from each of which commenced a street, 6 feet wide, extending to the opposite entrance, and between these there were ten smaller streets, all running in parallel lines, and intersecting each other. According to *Anderson's Oxford Journal*, near the middle of the city, which was inclosed by the walls in the form of an irregular polygon, have been discovered the foundations of a large structure, consisting of three stories about 3 feet thick, supposed to be a forum or temple, because within it were found the remains of a little elevated building, supposed to be an altar. It is maintained by many antiquaries and historians, who have pursued the most industrious investigations with regard to this site, that it was from this spot that the usurper Constantine was invested by the soldiers in the purple in the year 497; that from this once potent and august site he issued his edicts to a trembling and abashed people; and that King Arthur was crowned on its identical spot. The city was destroyed by Ælla, the Saxon, in the year 488. The height of the remaining part of the walls is from 16 to 20 feet and, when entire, must have been much more, and some were originally full 10 feet in thickness. Sufficient still exists to denote that it was a principal Roman station, enriched with statuary, fountains, and decorated with the chief provincial cities constructed and inhabited by the masters of the world. This is from time to time confirmed by the discovery of remains of capitals, mosaic pavement, tesserae, large numbers of ancient British and Roman coins, the remains of public baths; while the occasional discovery of some additional relic induces the belief that vast quantities of antiquarian curiosities are still buried beneath the surface, and hold out the promise of reward to future industry and search.

hay on every side (so much of it that the oldest man of the party thought himself literally in the hay-day of life), pleased the sense of smelling, and freshened enjoyment: They all forgot the struggles of the dusty town and "babbled of green fields."

Ifley Church, one of the most interesting remnants of the Norman period that we have, and known probably to the majority of our readers, was the first stopping-place. Its richly ornamented doorways will be remembered from Britton's "5th volume," even by those who have not seen the building, as well as the general arrangement of the church and its appearance. It is a long, narrow parallelogram, 103 feet by scarcely 20 feet, including an Early English addition to the chancel; and the Norman tower, low and massive, rises at the junction of the nave and the chancel.

The church was repaired and partly restored a few years ago, when the appearance of the east end, externally, was unnecessarily spoiled by two enormous buttresses. Little is known of the early history of Ifley Church. It was built previous to 1189, the year in which Henry the Second died; because, in a charter granted to the priory of Austin Canons, in Kenilworth, in the latter part of that king's reign, it is stated that the church (called therein of *Yftele*) was given to that priory by Juliana de Sancto Remigio. The "Sagittarius," or mounted archer, appears in the capitals of the columns at the south door and elsewhere, and, as this is the heraldic badge of King Stephen, it is not unlikely that the church was built in his reign, that is, between the years 1135 and 1154.

The boat was again put in requisition, and ultimately deposited its freight at Nuneham Park, where now stands the curious conduit, built, 1610, by Otho Nicholson, Master of Arts, of Christ Church, at the junction of the four ways, in Oxford, called *Carfax*. The historian of Oxford, Anthony Wood, states "that Quatrevois, or Carfax, was accounted the Meditullium of the city, the heart of the market, and the chiefest place where most sorts of merchandise were exposed for sale. In the middle of this Quadrivium, or four ways, a very fair and beautiful conduit presents itself to us, such for its images of ancient Kings about it, gilding, and exquisite carving, the like is hardly to be found in England."

Nicholson brought the water from the hill above North Hincsey to the several colleges: the cost of the conduit, which, from its site, is still called the "*Carfax Conduit*," including laying the pipes, was 2,500*l*. As early as 1638 it appears to have been considered a nuisance, but it remained till 1786, when the commissioners for paving determined it should be taken down. A paper in a collection of documents relating to Oxford, exhibited by Mr. Dunkin, in the temporary museum, says:—

"The conduit was presented by Otho Nicholson to the University and City, who, under the authority of the Paving Act, passed in 1771, caused it to be removed in 1787, and presented it to the Earl of Harcourt, in whose park it still stands. Its more appropriate situation would have been the widest part of St. Giles's, where it might have continued an ornament to the city and out of the way of the public road; or rather it should have been placed in the great quadrangle of Christ Church, where it would have been a more appropriate and more lasting ornament than Mercury, who, although of lead, has long since flown from his pedestal. A monument to the memory of Otho Nicholson is placed at the entrance into the Cathedral of Christ Church."

As may be supposed from the date (1610), the construction is of mixed character, the

outline Gothic, the details Italian. It comprises a square basement, an octagonal termination carried on four arches springing from the top of the basement, with niches, figures, and other sculptured decorations. It appears at one time to have been painted, vestiges of colour being still apparent in protected portions of the upper part.\*

A short walk across the country brought us to the pretty little church of Clifton Hampden, nicely restored a few years ago, under the direction of Mr. Scott. It stands on an elevation, and, seen from the river, has a picturesque effect. It is small, of decorated character, has a bell-cot and spire, with a buttress up the centre of west wall to carry it, open roof of oak, rood screen, credence table, sedilia, and a monument, with recumbent figure, on north side of the chancel, in memory of a late incumbent. The reredos is diapered—gold on a red ground. The church-yard is entered by a Lych-gate, of good design, and some of the recent grave-stones are of ecclesiastical character.

Our early antiquaries used to say that the world had been barren since the Romans. A French writer has preserved a record of one of this class, who was rejoicing in the total destruction of a Gothic church, because in the midst of its broken stained glass, demolished carvings, and headless saints, he, a corresponding member of six learned societies, had found a *Roman brick*, and, what was more, a brick of a good epoch! The restoration of mediæval buildings, which has been going on throughout the country for some few years, shows with what different feelings such works are now viewed. This has brought an evil of another sort, to be avoided. Thus, at the closing meeting of the Archæological Institute, the Bishop of Oxford dwelt at considerable length on the danger arising from a superstitious love of the past, and the prizing of old things merely *because* they were old. He expressed his opinion that such was not the legitimate effect of Societies like the present; that they should look with discriminating judgment on the past, which sharpened men's minds for the present. And Professor Willis followed in the same strain: he dwelt on the error in which many were apt to fall by *over-rating* the relics of the past; copying them without reference to the ritual with which they were associated; and observed that he had no desire to induce them to sweep away the monuments of a former ritual—piscina, &c., but he would preserve them as monuments of those errors from which they themselves had been preserved.

From Clifton Hampden the party made their way to Sutton Courtnay, in Berkshire, about two miles from Abingdon, where there is an exceedingly interesting 14th-century residence, the Abbey Manor House, now occupied by the rector of the parish. The open

\* An old document, quoted in the *Oxford Journal*, says:—"The conduit is exactly square, built with fine polished stone, cut all over in imitation of the waves of the sea; but since the University had it, when it was damaged by time, notwithstanding the great weight of stone-work above the square walls, it was so well contrived by props and pulleys while doing, as to support the whole top while the sides of the old walls were pulled down. Note the arms of the University, City, and Founder—the last of which is azure, two bars, ermine in chief, three suns in their glory, as many sun dials, making in all twelve: between each corner dial, facing north, south, east, and west, is finely carved a sort of open work, consisting of capital letters, the sun in his glory, and mermaids holding of combs and mirrors. Note, that the letters O. N. compose a rebus, being the initials of his name, and was an ancient way of expressing devices. On the four side walls above the cornice are placed, on the three sides of each cube, as many sun dials, making in all twelve: between each corner dial, facing north, south, east, and west, is finely carved a sort of open work, consisting of capital letters, the sun in his glory, and mermaids holding of combs and mirrors. Note, that the letters O. N. compose a rebus, being the initials of his name, and was an ancient way of expressing devices. On the four side walls above the cornice are placed, on the three sides of each cube, as many sun dials, making in all twelve: between each corner dial, facing north, south, east, and west, is finely carved a sort of open work, consisting of capital letters, the sun in his glory, and mermaids holding of combs and mirrors. Note, that the letters O. N. compose a rebus, being the initials of his name, and was an ancient way of expressing devices. 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wood roof of the hall, with large moulded arched ribs, coming far down the wall, with king-post on the apex, is ascribed to the same date, but seemed to us on cursory inspection to belong to a more recent period. A view of this roof is given in the 5th edition of the Oxford Glossary, just now published.\* The church at Sutton Courtney is of early foundation. The tower is Norman; the rood screen remains; and over the south porch is a small apartment, such as is found in the same position in many churches, sometimes called in modern times a *parvise*, but without much authority;—this term (or “paradise”) applying rather to an open space in front of, or round a church. Some of our readers will remember that the open space next the church of Notre Dame in Paris, as well as at other churches in France, is still called *Le Parvis*.

An ancient building is a source of enjoyment and pleasure even beyond the physical beauties it may exhibit. It must be Bulwer who says,—“There is a sense of hearing that the vulgar know not; and the voices of the dead breathe soft and frequent to those who can unite the memory with the faith.”

And now back to Oxford.

#### DOMESTIC USE OF GAS FOR LIGHTING AND HEATING.

THE great aim and end of all our endeavours to obtain for the public an abundant supply of cheap and good gas, as often hinted, has been the promotion of its extensive use in private dwellings, both as an economic fuel, for heating and cooking, and as a cleanly, cheap, and cheerful light. The efforts of ingenious men, therefore, to assist both us and themselves in the attainment of this very desirable end cannot fail to meet with our encouragement and approval. We are glad to find that decided and important efforts are being made with this view, under the firm and expressed persuasion that the time has now come when such efforts will be well repaid by the public patronage.

That this time has now come there is reason to believe. The metropolis will soon, it is to be hoped, be placed in a position which will enable and induce it to set the example to the whole country. The price and the quality of gas have hitherto been such in London as to offer no inducement to the extension of its use in domestic economy; hence the movement, which has been supported probably more by would-be consumers than by those already using it. And that this movement will bring gas, for light and heat, within the reach of all—even the poorest—who can afford either light or fuel in their dwellings, is now becoming the opinion of those professionally engaged in its manufacture. We may quote, for instance, from the evidence laid before the late Parliamentary Committee on the Great Central Gas Consumers' Bill, the opinion of one who has “had the experience of nearly half a century in the manufacture of gas,” (although full of prejudices, by the way) and whose evidence was disinterested enough to militate at least as much against the Bill as in its favour.

Mr. Clegg thought that the reduction to 4s. would stimulate consumption, and would bring it within every one's reach for light and heat,—for cooking, for instance. Witness knew hundreds of gentlemen who would not have a fire in their house. Had himself used gas for cooking, with perfect success.

Cross-examined by Mr. Burke.—Considered there would be a very great increase in the consumption of gas, but could not tell which company would get it. [It will take them all ere long, and with extended works, too, to satisfy the public demands.] Four shillings was the turning point at which people would cook by gas instead of by coals. Some cook at 6s. and some at 7s.; but there is no mistake about it at 4s.

We lately witnessed the results of one of those endeavours just noted to meet the forthcoming demand by improved apparatus adapted to domestic uses, whether on a small

\* The 5th edition of this valuable work contains much additional matter, and has been revised throughout. We shall take an early opportunity to recur to it.

scale or a large, as well as to more extended purposes of profit and sanitary welfare, public and private.

The chief, or at least the most novel, of these inventions, consisted of a gas-heated bath patented by Mr. Defries. The patentee appears to claim no little credit for the principle of this apparatus as well as for the adaptation of that principle to such a purpose, but the fact appears to be that it constitutes simply an adaptation of the tubular-boiler principle. In the present instance the metallic tubes, in which the cold water is exposed to the heat of a tray of gas jets, are placed below the bath, which is one of sheet metal. They are, in fact, flattened, shallow canals rather than tubes, and are so placed with relation to the burners that great facility is afforded to the communication of the heat to the water. As it is poured into the bath the cold water escapes at bottom into the tubes, which it therefore first of all fills, and as it becomes heated it re-ascends into the bath through orifices at the top, so that a rapid and uninterrupted circle of action is at once established, by means of which the water is heated. Boiling water begins to appear in the bath in one minute, and within six minutes forty-five gallons of water, at a temperature of 62 deg. Fahrenheit, are heated uniformly up to 106 deg. The quantity of gas consumed, as indicated by meter, was between twenty-three and twenty-four feet in the course of five minutes, when the water was heated enough for use as a hot-bath; the expense of heating, at 6s. a thousand feet, the charge still, we presume, in Regent-street, being really little more than one penny, even at that now almost obsolete price.

The other invention referred to consists in a series of gas cooking-stoves. By means of one of these, a single ring of jets, consuming, it is said, only 12 feet of gas an hour, has compartments in which to bake and boil, steam, roast, and broil at the same time. We can see no difficulty in the way of a considerable reduction in the prices of more complete articles than some of the cheaper order of these, and it should be an especial care of inventors or manufacturers to keep the poorer classes in hot water, economically supplied.

The *Atmopyre* is the name of a curious arrangement for warming, cooking, &c. by means of gas, invented by Mr. D. O. Edwards, a surgeon. The gas is burnt on the outside of small “hoods,” made of the material of the common tobacco-pipe, perforated with holes the 50th part of an inch in diameter, in imitation of Sir Humphrey Davy's safety lamp reversed. Gas is introduced into it, and there mixes spontaneously with atmospheric air, forming a kind of artificial fire-damp. This mixture, being ignited on the outside of the vessel, discharges itself in numerous diminutive explosions; the earthenware is enveloped in a coat of pale blue flame, becomes soon red-hot, and presents the appearance of a solid red flame.

The “hood” is the exact converse of Sir Humphrey's lantern. The explosive gas is inside, instead of outside: the flame on the exterior is prevented from penetrating and kindling the contents of the chamber by the narrowness of the apertures. The explosive mixture, being minutely divided, is burnt piece-meal at the outer orifice of each hole, producing a slight murmuring noise, and great heat is evolved, which, instead of escaping, accumulates.

A single “hood” being placed on a burner, is heated to dull redness in the course of a minute; but an aggregate of “hoods” placed in juxtaposition, and inclosed in an earthenware case, are heated to an orange colour, and the case itself becomes bright red. In respect of economy, the expense of the new fuel, at the present price of gas, is rather greater than the old; but the inventor claims a saving in collateral circumstances. Each “hood,” he says, consumes five-sixths of a cubic foot of the common carburetted hydrogen gas per hour, and a battery of eight “hoods” is sufficient to warm a good-sized room, measuring about 4,000 cubic feet, if the doors and windows fit tolerably close.

The fitness of the “atmopyre” to secure a perfect ventilation is thus exemplified for a parlour by the inventor. A battery of twelve “hoods” is inclosed in an earthenware case, which, becoming heated to 400 degrees or 500

degrees Fahrenheit, constitutes a repository of heat. This is placed in an outer case of china, terra cotta, common ware, or any other non-refractory substance. The products of combustion are carried away by a small pipe entering the chimney. The fresh air is brought from outside the house, through a large pipe about 6 inches in diameter, which communicates, by means of a valvular iron plate, with the space contained between the two cases. The air ascends in this area in large quantities, is warmed in its transient contact with the inner case, enters the room through large holes in the top of the stone at 120 degrees Fahrenheit, and diffuses itself equally through the apartment, maintaining such a temperature as the inmates may desire.

The fire may be concentrated in one part of a room, or distributed over the several sides. The strictest economy would require that the “chimney,” or “way out,” for the products of combustion, should be in alto relievo within the apartment, in order that the least possible heat should be lost. This would be a kind of æsthetic difficulty, that would replace the prevailing sooty chimney-pot, upon which it is so rare a triumph of art to affix any impress of beauty.

We have received from the commissioners for lighting the parish of St. James, Westminster, the following report of the results of experiments made by Mr. Leslie, at their request, in the presence of a deputation from their body, viz.:—Lord De Mauley, Hon. Frederick Byng, Messrs. Bidgood, Clark, Gabriel, Rose, Sasse, Tritton, and Woollams, as to the comparative value of the gas supplied by the Chartered Gas Company, and that made by the Western Gas Company from Cannel coal. Each company supplied its own burners, and in every instance the unanimous vote of the deputation decided the point of equal illumination:—

EXPERIMENTS.	HOVELY CONSUMPTION.		EQUAL ILLUMINATION.	
	Feet.	Tenths.	Distance from Photometer.	Feet. Inches.
“FIRST. Chartered Gas } bat's-wing, using Chartered Gas..	4	5	10	5
” Western Gas } bat's-wing, using Western Gas ..	2	8	9	7
In this experiment the consumption of the Chartered Gas was 60/71 per cent. more than the Western; but the increase of light was only 18/15 per cent.				
SECOND. Chartered Gas } bat's-wing, using Chartered Gas..	4	5	11	5
” Western Gas } fish-tail, using Western Gas ..	2	55	8	7
In this experiment the consumption of the Chartered Gas was 78/47 per cent. more than the Western; but the Chartered produced 70/92 per cent. more light.				
THIRD. Chartered Gas } bat's-wing, using Chartered Gas..	4	5	9	1
” Leslie's burner, } using Western Gas .....	3	0	10	11

In this experiment, although the Chartered bat's-wing consumed 50 per cent. more gas than Leslie's burner, Leslie's burner produced 44/44 per cent. more light.”

These experiments show several points. First, that although the illuminating power of the Western Company's gas made from Cannel coal is much greater than that of the Chartered, it is not so much so as to enable the former to maintain the high price they put upon it; 2ndly, that the “bat's-wing” burner is superior to the “fish-tail,” and, 3rdly, that Leslie's burner is to an extraordinary extent better than the best of them.

Having expressed a good opinion of this burner in the first instance (and which we have continued to hold, notwithstanding assertions to the contrary by persons who have been resolutely opposing its use), we are glad to find our own views now fully borne out. The evidence given to the House of Commons on the Central Gas Company's Bill, by Mr. Bokenham, the superintendent of the Inland Department of the London Post-office, is even more conclusive on the point. It shows that the consumption of gas in the year ending Jan. 5, 1848, was 8,707,700 cubic feet, which, at 7s. per 1,000, then paid, came to 3,047l. 13s. 10d.; while the quantity of gas



consumed for the next year, up to Jan. 5, 1849, was but 7,457,700 cubic feet, which came to in money, 2,354*l*. 15*s*. 5*d*.; giving a difference of 692*l*. 18*s*. 5*d*. in the year.

The following extract from his evidence shows by what means this great saving was effected, and gives some idea of the sort of gas supplied to us.\*

"Now, in the course of the year ending January 1849, did you adopt a purifying process?—We did.

Whose process?—Leslie's purifying machine.

During that year did you use the same quantity of burners that you had in use in the previous year?—Oh, no.

Did you use gas to the same extent for the purpose of light?—For the purpose of light we did.

And yet you consumed more than a million cubic feet less?—Certainly.

Now give the statistics of 1849.—The consumption of gas in the year ending Jan. 5, 1850, was 7,405,800 cubic feet, and the expense was 2,024*l*. 19*s*. 9*d*. [a further saving.]

Cross-examined by Mr. Hope.—You resorted to the purifying process, you say?—Yes.

Did you make any difference in the burners?—

We had new burners introduced with the purifying machine, or rather the burners were introduced before the purifying machine, and we found we could not use them until we availed ourselves of the purifying machine.

When were the new burners put in?—We tried seven of Leslie's burners previous to that time, as I have stated, and we found that they would not burn.

Was that previous to the year 1847-48?—Yes, they became corroded and we were obliged to give them up, and Mr. Leslie then said it was owing to be impurity in the gas, and that the burners would go very well if we purified our gas, and the purifying machine was introduced, and these seven burners have been burning correctly up to the present day.

Then these burners were more economical than our old before, but were inapplicable until the gas was purified?—Just so.

Gas companies and gas fitters, if they be wise, will do no longer shut their eyes to the value of this burner.

We hope very soon to see a complete evolution in the domestic economy of heat and light, and certainly the exertions of those who can now see something like self-interest in preparing and pushing their way into public notice with such improvements, will not a little and to promote the public interests in this respect, as well as their own. The gas companies, however, have still more power, and ought, for their own sakes, no less than for those of their anticipated customers, to adopt a liberal policy in respect to the supply and fitting of meters, the fitting up of pipes and apparatus, payable by a per centage on outlay, and above all, by the *sine qua non* of all their future prospects of rising profits—perfecturity in the article designed to penetrate into private houses, and to wind its way into bedrooms and kitchens, as well as into drawing-rooms and parlours.†

# ON THE STRUCTURAL PRINCIPLE OF THE ROOF OF WESTMINSTER HALL, AND THE INDICATIONS OF A DISUSED METHOD OF SUPPORTING ROOFS.\*

HAVING a few years ago treated on mediæval wooden roofs, and endeavoured to exemplify the structural principle of that of Westminster Hall, I have not read with indifference some recently published adverse opinions.

As the opinions alluded to arose from the review of a popular and very useful collection of open timber church roofs, it may be at once stated that these are so inferior in size and scientific development to the finer domestic specimens (the boldest ecclesiastical example scarcely exceeding thirty feet, while Westminster Hall is sixty-eight feet wide), that I regard the volume in question and its authors as perfectly unobnoxious to remark in a critical consideration of the matter.

Those, indeed, who, from a conviction of the highly suitable and effective character of the open wooden roof for sacred as well as civil edifices, would wish to revive and extend its application at the present time on true principles, will, I think, prosecute their object with the fairest aim at excellence, by the diligent examination of those stupendous examples devoted to secular uses, in which the resources of art are most fully displayed. They will thus be best prepared to impart intrinsic merit to ecclesiastical works, too often left to rest their claim for respect on embellishments received from the carver or the colourist.

Had we examples of this latter kind only, notwithstanding the poetically typical significance and elaboration of detail possessed by many, the charge against our ancestors of a total failure to assimilate open roofs with the compressible architecture, or that called Gothic, might have remained uncontroverted; but, fortunately, we have instances of the most successful treatment, and of such none are more worthy of admiration, both for unapproached magnitude and ability of contrivance, than that of Westminster Hall. A recognition of the true system of its construction is calculated to be highly conducive to the progressive excellence of such works; and I shall esteem it a great satisfaction to be, however humbly, useful in so desirable a result.

Two authorities condemnatory of this roof have been brought more prominently forward, namely, Mr. Bartholomew and Dr. Robison. The first of these says, "No work on the earth perhaps exhibits more excellence of workmanship, and perhaps none shows more assiduity and skill of an inferior kind, to obviate the thrusting power of the roof; but, the whole being constructed on false and unscientific principles, it is in vain that this want of science is concealed by intricacy of framing and excellence of workmanship." If I am not mistaken, the writer here quoted has been entirely misled by the intricacy of the merely subordinate panelling or tracery; but as this will presently be more fully entered into, I shall proceed to Dr. Robison's view of the case.

"Westminster Hall," he says, "exhibits a specimen of the false taste of the Norman roofs. It contains the essential parts, indeed, very properly disposed, but they are hidden, or intentionally covered, with what is conceived to be ornamental (and this is an imitation of stone) arches, crammed in between slender pillars, which hang down from the principal frames, trusses, or rafters. In a pure Norman roof, such as Turnaway Hall, the essential parts are exhibited as things understood, and therefore relished."

It is surprising that a paragraph, betraying such extreme ignorance of dates and architectural characteristics, should have emanated from a writer of the Doctor's standing, even in the last century; and yet more astonishing that a man of his rank should have been misled by a series of zinc plates in a galvanic battery with a separate and isolated trough containing sulphur, a high electro-negative, we long ago obtained decided manifestations of electrical action in the clustering of the sulphur round the single pole or wire communicating with the series of zinc plates while the ordinary galvanic circle was closed and the trough in action. Other parasites prevented, as they still do, any further investigation of this peculiar train of experiment, but it seems to bear on the subject of the present note. Mr. Paine, we understand, has agreed to arrangements for a trial of his apparatus at Astor House, New York.

\* Read at a meeting of the Institute of Architects, 24th June.

it should be put forward by a professional critic of the present day. It clearly shows, however, the impression that the internal parts of the truss really depend from the main rafters. Excepting the lower part of the walls, the Norman hall of William Rufus was rebuilt three centuries afterwards by Richard the Second, who, on its completion in the year 1399, solemnized Christmas by a characteristically splendid feast; and every lineament of the roof, so far from partaking of the Norman manner, proclaims its origin to have been late in the fourteenth century.

The error in thus following Dr. Robison might alone warrant a doubt, whether the concealments of which the writer who quotes him speaks actually exist, and whether his assertion, that "constructive principles, if true, must be anti-Gothic; that to make open roofs beautiful and truthful, all Gothic ideas must be relinquished," &c., have received from himself the reflection befitting their unqualified expression. With respect to the remaining portions of the critique alluded to, I may say, with the editor of the journal in which it appeared, "that his arguments have not convinced ourselves;" and then I will proceed to bring under notice the key to the construction of this truly wonderful example of carpentry.

My observations go to show, that the arch is not merely a very grand ornamental feature, but that it is absolutely the essential principle and weight-sustaining medium of the truss; and should this hypothesis prove correct, the propriety of the Gothic, or the compressible system of design in carpentry, must, I conceive, be admitted.

Commencing then with the great arch rib, which in its section is upwards of two feet each way and spans the width of the hall, we find, that dividing the curve from the springing to the apex into three parts, the first of such divisions gives a point in the rib, at which it is intersected by a massive horizontal beam of nearly equal dimensions with itself. This horizontal timber, called the hammer-beam, extends outwards to the foot of the rafter, and is continued in the opposite or inward direction to the same extent, so that if secured on a central pivot, this timber might be acted upon as a scale-beam or lever of the first order, and if loaded equally at both ends, would remain in its horizontal position, while the entire weight would be concentrated at the pivot, and thrown upon the supporting arch. If, taking the hammer-beam as a base, we draw a perpendicular line from the inner extremity, it will be found to cut the rafter, or surface of the roof, just midway between the foot and the ridge, and taking this rafter or surface line as the hypotenuse, a triangle will be completed.

This triangle will be found to have an exact counterpart in the upper half of the roof; but, as the weight is proportionate to the superficial area, it is only necessary to explain, that this area is divided longitudinally into two equal parts; that under this divisional line a purlin exists, upon which is collected the weight of the upper half of the roof, and this weight is transmitted, by a vertical post, to the inner end of the hammer-beam. The lower half of the roof discharges, in like manner, its weight on the outer end of the same timber, and the equipoise is thus rendered perfect.

If the accuracy of this much be conceded, I think but little remains for discussion. The fitness of the skeleton for its intended purpose once seen and admitted—the graceful adaptation of the tracery and minor arrangements for supporting the slighter parts by aid from the stronger will be manifest, and especially so, when it is recollected that gravitation is not the only force to be resisted; but that the powerful action of the wind, on so large a plane, has also to be largely provided against. In tracing the history of these roofs, I have formed the opinion, that their type is found in the stone gables, or principals, employed in early halls, of which Conway Castle affords good examples, and a specimen also exists in the Manor-house at Ightham, in Kent.

Professor Willis says:—"A small chapel at Capo di Bove, about a mile outside Porta S. Sebastiano, Rome, figured by Agincourt, has the roof entirely sustained by a series of pointed arches, resting on corbels, and entirely superseding the usual trusses." The more ancient employment of such gables may be further referred to in the aisles of Hartlepool

\* Some extraordinary experiments by Dr. Lyon Playfair touching this point are now before the Government.

† Since preparing the paragraph in last week's *Builder* from Gas from Water, we have learnt that Mr. Paine, the alleged discoverer or inventor of the process, holds some peculiar ideas on the constitution of water. If we understand it aright, he regards water as an element, at least as such as the oxygen eliminated from it, and alleges that the hydrogen or oxygen may be so eliminated, as either may be desired, by special electrical action. If such be Mr. Paine's idea, and if so wonderful a result have really been obtained by acting on such an idea, we must claim a original merit of that idea for a fellow countryman, a scion of St. Andrews, who, at least twenty years since, wrote a curious treatise on chemistry, based on this and other original principles. Hydrogen, according to Macvicar, is the most elementary of all substances except "radiant matter" (and in this, indeed, Day himself appears to have some extent concurred). The form of its atoms or parts is the most elementary or simplest as well as most simple of all possible corporeal forms, namely, the tetrahedron. Oxygen, water, and all other substances are composed of these tetrahedra united by electrical affinity in various modes and numbers, constituting composite or mixed atoms, molecules, &c. Water, then, is composed of a respect of atoms, namely, of two atoms of hydrogen (when entirely resolved into atomic medium of tetrahedra), or partly hydrogen and partly oxygen (when some of these hydrogenous atoms unite in the closer conjunction, constituting the oxygen-nature). Out of such ideas may appear to a mere scientific chemist, we have heard Macvicar spoken of most highly by a chemist of celebrity in his day, and himself a respected atomist of Davy and Faraday, namely, Kemp. As to Mr. Paine's mode of eliminating hydrogen from water, we are led to believe that he alleges that the oxygen or hydrogen may be so eliminated according to the nature of the electrical conductivity. Now, we will venture to think that if Mr. Paine have really tested and proved the truth of Macvicar's idea of the constitution of water as resolvable into hydrogen, it must be by negative electricity (the singular affinity of which to the radiant action of the solar ray we have already noted in *THE BUILDER*), that he eliminates the hydrogen. A word to the wise in time may save us, at least, if not the Americans, from the private appropriation of so great and un-



Church, Durham, where they exist in a perfect state; and of St. Peter's, Northampton, where the remaining portions clearly indicated (at the time of my visit, a few years since) their original use. The nave of St. Peter's Church, I am inclined to think, had its roof supported by a series of such gables, above the alternate piers.

The Church of San Miniato, without the walls of Florence, has precisely this arrangement, except that the gable occurs over every third pier only; but, in other respects, the quatrefoil plan of the pier, and the appropriation of two of the group of shafts to the support of the nave arches (one at the back for the gable across the aisle, and the fourth in the front, which is carried up on the face of the clerestory for supporting the arch and gable over the nave), are identical in the two churches.

Speaking of San Miniato, Mr. Galley Knight observes:—"Large arches are thrown at intervals over the nave, connected with smaller arches, which are thrown over the aisles, at once assisting to support the roof, banding the whole fabric together, and giving it additional strength. When these arches occur, the pillars are exchanged for compound piers, one shaft of which is carried up to meet the arch above."

At San Zeno, Verona (a Romanesque edifice, begun in 1138, and finished in 1178), every alternate pier is a massive collection of shafts, with arches crossing the aisles and nave, as in the above instances. So striking indeed is the resemblance in these buildings to many of our own Norman churches, where we find shafts carried up with no reference to the present roofs, and yet well adapted to the support of such gables as I have been describing, that there seems good reason to conclude, that such features were at one time very general in this country, as well as abroad, and the question addresses itself to the attention of those entrusted with the restoration of our more ancient churches.

Previous to the date of the Westminster roof, timber arches had been applied in a form consonant to the general characteristics of their date, as at Nursted Court, near Gravesend, and other places; and whether the hall of Rufus was entirely covered by wooden framing, or had stone supports, the construction in wood of such a gable as we have been considering, was the task proposed to himself, and, in my humble opinion, nobly performed, by the architect of Richard the Second. Of those indeed who, to prove the falsity of its principle, refer to the distortion it has sustained in four centuries and a half, it may be fairly inquired, whether the many failures in masonry warrant the denial of truth in the theory of the arch altogether. The term "foliated" has been ably advocated, as applicable to the later wooden roofs, but in examples antecedent to the introduction of foliations as a common architectural feature, the roofs were, of course, without that characteristic, and in modern works where cusps are excluded, as in lancet buildings, they are, I presume, still generally and properly omitted. Such unfoliated roofs "possess," it has been said, "the merit of giving a grand church-like, though simple effect, without doing violence to the genius of its material." They certainly embody, in an eminent degree, the principle of rendering elegant the essential constructive elements, and of avoiding adventitious parts for ornament alone.

In concluding these remarks, I will advert for a moment only to the unfairness and futility of instituting comparisons between open wooden roofs and stone groinings, unless they were equally suited to our means, and depended for adoption entirely on choice. I am far from insensible to the charm of "the fretted vault," but where is an example as capacious as Westminster Hall, doubling, as it does, the breadth of our widest cathedral nave? When wood, applied to the purpose of groining, is painted, and made to represent stone, a deception is clearly practised; but, regarding the arched ramifications of a natural grove as a type



followed in ribbed vaultings, there would seem little impropriety in representing the "fair branches and shadowy shroud" of the cedar fairly and ostensibly in timber. The subtleties witnessed in the wooden groining over parts of St. Alban's Abbey, York Minster, and other buildings, are, doubtless, owing to the ponderosity of stone. The sacrifice of internal height which many of our finest edifices have sustained from the introduction of stone groining (and which would be quite destructive of effect in buildings of wide proportion), lays them open to the severe remark upon the splendid outer dome of St. Paul's, of being "a mere imposing show, constructed at a vast expense, without any legitimate reason;" for it need not be mentioned, that the groined ceiling never supersedes the ordinary roof, and between the two there often exists a chamber of considerable height, not only for the purpose of increasing the weight of the walls, and their ability to resist the thrust of the groin, but also to admit of building the latter under cover. The cost of the centring alone for a stone ceiling would, probably, pay for the decoration of an open roof, and the value of fair groining, if taken at 50*l.* a square, which experience enables me to state as a proximate sum, would place it quite beyond general application. While economy therefore confines us almost exclusively to the open form of roof, it is gratifying to experience the conviction, that it is truthful in principle, and, when artistically treated, capable of displaying, in the fullest and most graceful manner, the entire capacity of the buildings it covers.

THOMAS MORRIS.

In the discussion which followed, Mr. C. H. Smith stated that upon a close inspection of this roof, he had ascertained that the foot of the arch-rib did not rest upon the projecting portion of the moulded stone corbel, but that an actual space existed between them; and he had been informed by a competent authority that this is the case with many similar roofs.

Mr. Fowler (in the chair) said that he also had an opportunity of closely inspecting the construction of the roof of Westminster Hall, at the time of the erection of the lantern, and of the general repair some thirty years ago, and he had observed the expedients adopted to secure the roof, by means of bolts and ties, which compensated for the decay of the pins and tenons of the framing, but were not required from any defect in the principles of the construction. Mr. Smith's observations respecting the corbels did not, in his opinion, tend to disprove the theory advanced by Mr. Morris, but rather showed the prudence of those who constructed the roof: it would certainly have been very injudicious to allow the feet of the ribs to impinge upon the extreme ends of the corbels, weakened, as they

were, to some extent, by the mouldings. The ribs were, doubtless, continued into the solid of the wall.

#### THE DUKE OF CAMBRIDGE AND ART.

THE charities of the metropolis, the Art-Union of London, and many other bodies associated for useful purposes, have sustained a great loss by the death of H.R.H. the Duke of Cambridge. The council of the Art-Union, on Tuesday, when the announcement of his death was made to them, adjourned the meeting, in token of respect and sorrow. The following anecdote of the Duke, illustrative simply of his Royal Highness's manner, will probably not be considered out of place at this moment. Very early in the morning of the first day after the private view of the British Institution Exhibition in 1849, Mr. Godwin was alone in the Gallery, when the Duke of Cambridge entered with one of his suite. The Duke kindly recognized him, and spoke as to two or three of the pictures. Ultimately the Duke came to a very dark painting by Danby, which some of our readers will recollect, called "A Highland Chieftain's Funeral." "That's a bad picture," said the Duke. "Well, sir," replied his auditor, "I am sorry to differ from you, but I don't think it a bad picture." "You don't think it a bad picture? Now, I insist on your telling me why it isn't a bad picture." "Why, sir, if you'll permit me, it is so and so, and so and so; and, moreover, it is very poetical." "Poetical, is it?" rejoined the Duke, with a laugh; "ah! yes, poetical; that means you must have it in you yourself, and I haven't."

#### CHURCH BUILDING NEWS.

St. John the Evangelist, Whitby, was consecrated on 2nd instant. The foundation-stone was laid on 12th October, 1848. The edifice is in the Early English style, and 70 feet long by 45 feet wide internally. The plan approaches the cruciform, having transepts of slight projection at the sides. The south transept, with its entrance, middle story, and round window, is crowned with a bell spire between the side pinnacles, altogether the loftiest part of the building. A "five lancet window" fills the space over the western entrance to the gable, which terminates with a cross. The side windows are the "lancet in twos," between buttresses hooded and finialled. There are pinnacled buttresses at the angles of the side aisles and on the west front. The interior is divided by pointed arches into aisles, and galleried the whole length and across the west end. The recess formed by the north transept



is intended for the organ. If funds be raised, it is intended to carry out a chancel by purchasing two houses adjoining the east end, the plan proposing the altar perspective to end in a circular window of stained glass. The roofs are open, with dressed timbers, stained oak, and the apex of the middle roof is 45 feet from the floor. The sittings (1,200, two-thirds free) are pews fitted with doors, and open benches. Contract cost of building, with site, upwards of 4,500*l*. Messrs. J. B. and W. Atkinson, of York, were the architects; and Mr. W. Falkinbridge, jun., contracted for carpenters' and joiners' work; Messrs. Driver and Fawcitt, masons; Mr. J. Stockton, plasterer; Overend, slater; J. Smith, glazier; and C. Wright, painter. A font has been presented by the Archdeacon of York; and the oak for the pulpit and reading-desk, by Mr. W. Cavillier, of Whitby. The position of the bell spire has been objected to as rising through the ridge of the roof behind the wall, as if it rested on the interior beams beneath the slating. The ladies of Whitby have laudably exerted themselves in working a rich carpet for the altar floor.

**St. Peter's Church, Northampton.**—The works preparatory to the restoration of this church have been at length commenced, and several curious discoveries have been made. On pulling down the east wall of the chancel, most ruinous in condition, numerous fragments of Norman work were found to justify the architect in restoration of a Norman east end. One small Norman capital seems to point to a triplet window with detached shafts. A portion of the original gable cross was found, sufficient to indicate the form. The most interesting discovery, however, is said to be the existence of the old chancel one bay further eastward. A silver coin of Charles I., found in the stone-work, is thought to mark the period when the curtailment was effected. The funds, it is feared, will not allow of the chancel being rebuilt as desired by many members of the committee, who, with the Marquis of Northampton and others, met Mr. Scott on Tuesday week to view the site.

**Sheviocke Church, Cornwall.**—The re-opening of the parish church of St. Peter and St. Paul, Sheviocke, took place on 29th ult. The restorations, under the direction of Mr. G. E. Street, architect, consisted in rebuilding east and south walls of chancel, with new windows and stained glass, re-arrangement of seats for choir, and restoration of decorations of altar. The nave and aisle have been untouched, except that some pews have been lowered, and the old pulpit replaced by an open desk. The stained glass is by Wailes. The principal window (of five lights) contains figures under canopies, of St. Peter, the Virgin Mary, our Lord, St. John Evangelist, and St. Paul. Below these are five subjects from the Passion of the Cross; and in small niches in the canopies are figures of the Apostles, &c. The chancel is paved with Minton's tiles. An old niche in the north wall has been restored, and with a corbel below serves for a credence. The sedilia and piscina and pan have been restored, and are used. The chancel roof is of oak and of steep pitch. The gable is surmounted with a cross. The east wall is hung with costly stuff, in blue and gold, and crimson and gold alternately. The builders engaged were Messrs. W. and F. May, of Devonport. The church, it is felt, may be still further improved by a complete reseating.

#### THE LIVERPOOL ARCHITECTURAL SOCIETY.

On Monday in last week, the members of this society made an excursion to Chester, in order to inspect the interesting antiquities and architectural remains of that city. Amongst the Liverpool architects, &c., present were, Mr. Pictou, Mr. Holme, Mr. Reed, Mr. Hay, Mr. Howard, and Mr. Boulton; and they were met by several members of the Cheshire Society, under the conductorship of the Rev. Canon Slade, who explained the different features of the architecture. The churches of St. John and St. Mary were subsequently inspected.

At the dinner which followed, the chairman, Mr. Pictou, remarked, in the course of his address,—that "the Liverpool Society were not merely antiquaries. Like Janus, they had two pairs of eyes, one looking into the past, and another looking forward to the future, ready to

catch every faint gleam of improvement, and to take advantage of everything which might tend to promote art or science in time to come."

An evening meeting of the Chester Society followed, at which Mr. Ayrton read a paper on the Norman remains of the cathedral. In the course of it, he spoke of the Norman vault situated to the west of the present west cloister, opened at the time the British Archaeological Association visited Chester.\* This (he said) had been called the *promptuarium*: would they allow him to ask, had it been properly christened? Mr. Ashpitel stood godfather to it, but he waives the honour to Henry the Eighth, on whom, however, Mr. Ayrton thought it was not to be fastened. "We have here," said Mr. Ayrton, "a vaulted chamber of great extent, (about 110 feet,) with four principal entrances, built on a design of imposing continuity, kept carefully unbroken and unfringed on by those minor details which the conveniences necessary to promptuaria imply. We have the whole of the architecture carefully finished for the date, the pillars highly ornate, and almost classically beautiful, and their surface as sharp and unbroken as when they first came from the mason's chisel. I cannot reconcile these facts with an assumption which appears to me to have no authority to support it. I should rather have supposed, from its design and situation—between the abbots' apartments, the refectory, and the convent—that it had been intended for a sort of cloister or ambulatory for the monks' and abbots' dependents to resort to for exercise and recreation; but it is closed on every side, of which we have no instance in a cloister. It contains a fireplace; and the windows by which it was originally lighted all face to the abbots' premises, and not to the convent. I should rather suppose, and I really do think we shall be nearer the truth in this conclusion, that this is no other than the *secunda aula* itself,—a sort of banqueting-room belonging to the abbot's palace.

#### NOTES IN THE PROVINCES.

At Lincoln, the other day, five floors of a corn-store successively gave way, from the weight of corn on the top floor.—On Friday in last week the new school-room erected at High Garrett, at the expense of Mr. S. Courtauld, was opened. It is a lofty room, of Gothic architecture, 80 feet long by 30 broad, surmounted by a glass cupola, the walls ornamented with carved wainscot, and a stained glass window at each end.—The public walks (25 miles in length) around the town of Nottingham were opened on Monday week.

—The first stone of the Ringwood National Infant School, for two hundred of either sex, was laid on the 28th ult.—Several parties have offered springs of water from the neighbouring hills to the Committee on Fountains at Bath. The water from some of these springs rises to the full height of adjoining houses.—The embellishment of the front space at Lanedowne Crescent, Bath, is contemplated, a plan having been prepared by Mr. J. Maggs with that view.

—On Friday in last week, the new Customs Station at Pill, Bristol, was opened. It is built on wharf walls with Stapleton granite, and has a slate roof and projecting cornice. Messrs. Wilcox and Son, of Bristol, were the builders, and Mr. T. Howell, of her Majesty's customs, was clerk of the works. The architect is not named. The cost was about 2,500*l*.

—The Wesleyan Chapel at Brynmawr was opened on Sunday week. It is in the Gothic style, and contains 31 windows, five stained in south end, and two stained in north end. The building is in dimensions 90 feet long by 60 wide, and 80 high. The roof is open, and stained in oak; pews low without doors, and free sittings benches with backs. It will hold 1,000 people. The contractor was Mr. E. Jones.—New schools for 600 children, with residences for a master and mistress, are about to be built at Hereford, on a plan furnished by Mr. T. Nicholson, of that city, architect.—The Holyhead harbour engineers are proceeding rapidly with the extension of the sea-walls at the northern breakwater. Upwards of 10,000 cubic feet of stone are on the ground for commencing the great sea-wall. Supplies are obtained from a lofty eminence that overhangs

the harbour. The stone, when tipped over into the breakwater, forms in layers of from 12 to 50 feet thick. There are about 1,300 men constantly on the works. The estimated cost of the harbour is 700,000*l*, of which the Chester and Holyhead Railway Company subscribe 200,000*l*. The whole will enclose an area of upwards of 316 acres of sea-room.

—Some premises in Lord-street, Liverpool, making together a range of four shop fronts, are in process of alteration into one structure, from designs by Mr. Reed, architect, of that town, and under his inspection. The whole of the ground floor will be thrown into one area, surrounded with counters, and fronted with a range of plate-glass windows, in frames of polished mahogany. The lower windows will require very large plates of glass. The second range consists of a row of arched windows supported by pillars of polished mahogany, with Corinthian capitals. The arches and surmounting cornice are highly ornamented. Statues of Psyche, Hebe, &c. are to be placed on the top of the building.

—Some repairs are about to be made in the parish church of Guisey, on plans furnished by Mr. H. F. Lockwood and Mr. W. Mawson, of Bradford, architects.—On 26th June, the Independent Chapel, Ossett, Wakefield, which has just been rebuilt at a cost of upwards of 1,000*l*, exclusive of the old materials, was opened.—The "Captain Cook" monument, in shape of a school with residence, is about to be erected at Martin, in Cleveland, the vicar of which, the Rev. Harrison Taylor, has succeeded in obtaining the means of realising the project.—A new school, to be called the "Brass Crosby School," at Stockton, is talked of, according to the *Gateshead Observer*.—A valuable iron mine it is said has been discovered near Whitehaven. The vein is 13 and 25 feet in thickness, and contains 65 per cent. of iron.—A pier is about to be erected at Inellan, near Dunoon, on the Clyde, designed by Mr. A. Bremner, of Glasgow, architect.

**Barry v. Reid.**—At Nisi Prius, in the Court of Common Pleas, an action of damages, at the instance of Mr. Barry, against Dr. Reid, came on for trial on 6th instant. The cause of complaint was that Dr. Reid had charged Mr. Barry with forging a document to be transmitted to the Woods and Forests, Justice Wilde, however, regarded the question as one of privileged communication, and expressed his opinion that it was quite clear that these gentlemen, who had unfortunately been unable to understand each other, had brought this matter before the Court in order to try the merits of their respective plans, and he thought it was not fair to keep twelve gentlemen there to try a question which could only be properly investigated by men of science. The only question properly before the jury was, whether the defendant intended to impute forgery to the plaintiff, or merely that he had made misstatements of what had taken place: he did not think the action maintainable, and recommended that the jury be discharged. The charge of "forgery," or rather of "wilful misstatement," which Dr. Reid seems to have imagined was synonymous with forgery, was withdrawn before the case came into court, Dr. Reid still adhering to his statement that there were great mistakes. Consent was then given that the jury be discharged, and a formal verdict of "not guilty" was entered for the defendant. Were this Mr. Barry's only grievance, the public might consider him wrong in taking any notice of it; but we must suppose that it is merely one of many grievances, which, even though they were wholly insignificant severally, may become an intolerable nuisance in the aggregate. The present instance, therefore, is to be regarded, probably, more as a specimen of a class—as the overflowsings of a brimful cup—than as any proper index to the sum total of annoyances that may render even a trifle in addition unendurable.

**Westminster Abbey and St. Paul's.**—A Parliamentary return gives the total amount of money received from visitors to Westminster Abbey, in the year 1849, as 968*l*. The same paper states that the sum received from visitors to St. Paul's, in 1849, was 430*l*, which is divided among the four vergers for their own individual benefit.

\* See our Seventh Volume, pp. 391 and 375.



## BYZANTINE DOORWAY AT GERMIGNY, FRANCE.



## BYZANTINE DOORWAY AT GERMIGNY, FRANCE.

THE province of *Bourbonnais*, a central part of France, contains a large number of important and interesting buildings, ranging from an early period, and has afforded matter for a costly and beautiful work.\* At Germigny, in this province, there was a fine church, but it has been completely disfigured, and now presents little that demands attention with the exception of the doorway, a representation of which we place before our readers.

\* "L'ancien Bourbonnais (Histoire, Monuments, Mœurs)," par Achille Allier, Moulins, 1839.

It is Byzantine in character, and very remarkable for its sculptured decorations. The large columns, one on each side, are surmounted by capitals beautifully sculptured, and the figures in the position of caryatides have draperies of severe character. The arch, it will be seen, is slightly pointed. The bas-relief, which fills the tympanum, is remarkable for the grave and thoughtful expression of the figures. It represents the Adoration of the Three Kings. The Virgin, who is seated, with an expression of firmness and decision

not often found in similar representations, has the Saviour in her arms. On the left are the kings; on the right angels, with Joseph in the corner. Other angels fill the hollow moulding round the arch. Very little light reaches this doorway in its position, so that it is seen with difficulty. The ironwork on the doors is of beautiful design, and may be usefully studied.

ARTIST-KNIGHTS.—Mr. Edwin Landseer and Mr. Watson Gordon have received the honour of knighthood.



## DETAILS FROM ITALY.



## DETAILS FROM ITALY.

The first of the annexed engravings represents the window and balcony of a private house at Verona. The whole is carved in marble.

To this we add a doorway in Florence, which may afford a useful hint.

## WATER SUPPLY FOR LONDON.

CLOSING MEETING OF THE INSTITUTE OF ARCHITECTS.

An extra meeting was held on Monday evening, the 8th instant; Mr. Fowler, Vice-president, in the chair. The premium offered for the best design in the students' class was presented to Mr. Bright Smith.

Mr. Godwin brought under the notice of the Institute the approaching architectural exhibition, gave praise to the body of young members of the profession who had spiritedly and at much personal cost undertaken the exhibition, and solicited for them the co-operation of the elder members of the profession. The receipt of a kind and encouraging letter from Professor Cockerell, he said, had removed any fear that it might be looked at with other than friendly feelings by the Royal Academy.

Mr. Prestwich then read a paper "On the Geological Conditions which determine the relative value of the Water-bearing Strata of the Tertiary and Cretaceous Series, and on the probability of finding in the lower members of the latter, beneath London, fresh and large sources of Water supply."

Mr. Prestwich commenced by stating that his observations were the result of inquiries connected solely with questions of pure geology, and were made without any anticipation of their application to this subject. He was led to it in the course of last winter by the apparent want of more exact geological information on the tertiary strata around London, which there seemed not unfrequently to be, in the many discussions which then took place on the important question of the supply of water to the metropolis. The existing system of Artesian wells in the sands below London clay, and in the chalk, as sources of public supply, had been generally considered as insufficient, and

there is little doubt that the yield of water, although altogether considerable, is inadequate to the requirements of a large town. But the physical conditions under which that supply is obtained have not been investigated, and in the event of a comparison being instituted between the relative value and capabilities of the strata and those of any other water-bearing deposit, such an investigation becomes essentially necessary. The object of this paper was therefore to determine these conditions, and to inquire into the probability of meeting, in the beds below the chalk, which crop out in Kent, Surrey, Beds, Bucks, and Berks, Oxon, and Wilts, and pass at certain depths beneath London, with better sources of supply. These conditions are almost entirely geological, and are regulated by

1st. The lithological character and thickness of the water-bearing strata.

2nd. The areas over which the outcropping edges and exposed surfaces of these strata respectively extend.

3rd. The position which the outcrop occupies on the surface of the country.

4th. The surface being bare or covered by any form of drift.

5th. The existence of any lines of disturbance by which the subterranean circulation of the water may be interfered with or stopped.

All these points were considered at length. It was shown that the "lower tertiary strata" below the London clay present a very variable series of beds, being in some places 120 feet thick, and in others not more than 25 feet. Eastward of London they are thick and arenaceous, whilst, as they range westward, they become rapidly very argillaceous and thinner; so much so, as to be almost impermeable; that the area which they occupy is less than it is usually represented; that the position of their outcrop is not generally favourable, and their surface frequently covered by drift; and that they are traversed by two important lines of disturbance, one running nearly due east and west from the Nore by Deptford, and thence towards Windsor, and the other nearly north and south, and intersecting the first one at Deptford. Owing to these disturbances, the underground flow of water from Kent and

Essex to these strata beneath London is almost entirely impeded, and that from Surrey in some measure affected. From these and other considerations, the author concluded, that although the superficial area occupied by the "lower tertiaries" extended over nearly 400 square miles (in Kent alone nearly 200), still that of this only about 30 square miles could be regarded as effective in contributing to the water supply of these strata beneath London.

A brief statement was then made of some of the Artesian wells in the adjacent districts. They are common in the valley of the Lea, from Waltham Abbey to Tottenham, but are not very productive, yielding generally not more than 4 to 8 gallons per minute. Almost all of them flow 2 to 3 feet over the surface. There are also several overflowing Artesian wells at Merton, Tooting, and Garrett. These are much more productive, supplying 50 to 100 gallons per minute. Many of these have been in operation from ten to twenty-five years.

At London, the supply of water in the tertiary sands having been constantly found insufficient, a considerable number of the wells have been continued down into the underlying chalk. The author then entered upon the question of the supply from this source, which he considered valuable, although rather uncertain. He accounted for the highly absorbent power of chalk by capillary attraction, which, at the same time, interferes with the ready and free passage of water in that formation. The water is, in fact, transmitted by percolation through fissures, which are of irregular occurrence and more numerous near the surface than at greater depths and in the planes of bedding, and not by general permeation through the mass, as is the case with arenaceous deposits. The lower beds of the chalk, or the chalk marl, are very argillaceous, preventing the passage of the water into the underlying upper greensand. This formation is from 20 to 50 feet thick in the meridian of London, and is shown by Mr. Prestwich to expand gradually until it attains at its most distant point of outcrop, at Devizes, a thickness of at least 140 feet, thus forming a wedge-shaped mass, of which the thinner end is beneath London, and the thicker one comes



to the surface in a tract between Devizes, Calne, and Wallingford. This deposit consists of permeable light-coloured sands and of fissile calcareous sandstones, and is of very uniform lithological character. It reposes upon a mass of clay, called the gault, which is from 120 to 180 feet thick, and perfectly impermeable. Below the gault is the lower greensand, which consists of a very variable series of beds, chiefly of light-coloured silicious sands. At Folkstone it is 400 feet thick; at Dorchester probably not less than 600 feet, and at Devizes only 20 feet. In Bedfordshire it may be from 300 to 400 feet thick, thinning off on the one side towards Oxfordshire, and in the other into Cambridgeshire.

The area occupied by the exposed effective surface of the upper greensand is stated to be probably about 110 square miles; lower greensand, about 390 square miles. The extent of their subterranean area is then given, and from these data and their relative thickness, the author estimates the following as the respective dimensions, in round numbers, of the different water-bearing deposits.

Lower tertiary strata.....	10,500
Upper greensand .....	150,000
Lower greensand .....	500,000

The water in the lower greensand is held up by the thick and retentive clays known as the weald and kimmeridge clays.

Mr. Prestwich concludes that it is probable, both with regard to areas for drainage, to lithological character facilitating the transmission of water, and to magnitude of volume as a reservoir for water, that the upper and the lower greensands present conditions as far more favourable than the lower tertiary, as their areas of exposed surface are greater—their lithological character and thickness superior—the position of outcrop usually better—their surfaces more generally free from drift, and they are both, the lower greensand especially, very absorbent.

He then seeks to determine to what extent these favourable conditions may be rendered inoperative by any disturbances in the strata between their outcrop and a central point at London, and although he admits the existence of several important faults in the lower greensand, and allows for them in calculating the water value of the strata, still he is of opinion that there are no disturbances of sufficient power to interrupt the underground flow of water to London, and he therefore sees no reason why, in the case of the upper greensand, the downs and valleys of Wiltshire, and the plains of Oxfordshire and Berkshire, should not contribute their contingent to a supply of water at London, or why even a much larger supply, amounting possibly to as much as fifty millions of gallons daily, if needed, should not be furnished by the lower greensand of the hills of Kent, Surrey, Bedfordshire, and Buckinghamshire.

Upon geological grounds he considers it probable that the chalk is not more than 600 to 700 feet thick beneath London, and he therefore thinks that the upper greensand might be reached at a depth not exceeding 1,000 feet, and the lower greensand at 1,200 feet, and as, in the district under consideration, the outcrop of the former is at an elevation of from 130 to 450 feet above Trinity high water level, and that of the latter of from 100 to 300 feet, the water from these sources might rise to a height of from 80 to 100 feet (if not more) above the low levels of the metropolis.

At the Artesian well of Grenelle, in Paris, the water rises about 120 feet above the surface of the ground. The lower cretaceous strata into which it is bored crop out beyond Troyes at an elevation of about 300 to 350 feet above the level of the well. The depth of it is nearly 1,800 feet, and the yield of water about one million of gallons daily.

The author briefly alluded to the Artesian well at Calais, as a term of comparison on the question of the difficulty and expense of such an undertaking. The thickness of the tertiary strata and of the chalk beneath Calais he considered to be rather more than beneath London, the former being (with the gravel) 241 feet, and the latter 762 feet. This well was bored to a depth of 1,047 feet, at a cost, including merely the temporary tubes, of 57,000 francs (with a further charge of 10,000 francs to the engineer, if it had been success-

ful\*), and the depth was afterwards increased to 1,150 feet for a further sum of 12,000 francs.

The author conceives, therefore, that there would be no practical difficulty in penetrating, by means of Artesian wells, both to the upper and to the lower greensands beneath London. The quality of the water from the former would probably be rather purer and less hard than that from the chalk: from the latter it would be more uncertain, although the sands are chiefly silicious. (At Grenelle, however, the solid residue from 100 litres of the well water was 14 grammes, whilst from the same quantity of Seine water it was 17½ grammes.) Still, such water would be perfectly free from organic impurities, and would possess a uniform temperature of from about 68 deg. to 70 deg. Mr. Prestwich believes that from this source a large and important auxiliary supply might at all events be easily and economically obtained, applicable to all ordinary purposes where large quantities were required, such as for cleansing the streets or courts, for stand pipes, for safety against fires, for public fountains and ornamental waters, for irrigation, and possibly for baths, and which would thus contribute to the sanitary improvement, as well as to the ornament and convenience of the metropolis.

Mr. Tite, in rising to propose a vote of thanks to Mr. Prestwich, said that he should take that opportunity of saying a few words on the general question of the supply of water to the metropolis. He reminded the meeting, that on the occasion of the reading of the paper by Dr. Buckland, on the same subject, early in the session, when they had the honour of the company of many gentlemen connected with the Legislature and of influence in the country, that he (Mr. Tite) ventured to suggest that it was extremely desirable that this very important question should not be left in the hands of the many private companies that had been started, but that a Government commission should be issued to inquire into it and all its details, to examine the various projects, and to choose the best. That unless this were done the country would have to lament a repetition of the competition and the extravagance which led to so much evil in the railway system. This hint he was glad to perceive had been partly adopted, for the Government had stopped all the new projects in the House of Commons, and had handed over the subject to the Board of Health, who had reported upon it, and published the results of their inquiries, accompanied also by their own recommendations on an entirely new mode of water supply.

He thought, however, that the report would have been more satisfactory if it had been accompanied by the full evidence of the several persons examined; and further that the parties most interested ought to have had some opportunity of stating their case, and of being present at their examinations. It appeared, however, to be admitted that the supply of water to the metropolis from the nine companies now existing had been enormously large—the supply amounting to no less than forty-four millions of gallons per diem. That this branch of the enquiry had been intrusted to an architect, Mr. Cresy (now one of the engineering inspectors), and that he had reported that this statement was, in the main, true. The best illustration of this enormous supply was given in the words of the report, that “the daily quantity was equal to a lake thirty inches deep, covering the whole area of Hyde-park.” The total annual quantity might, therefore, be taken at 16,000 millions of gallons. It appeared further from the report, that in the main, the water of this enormous supply was delivered in a state of considerable purity—except in the case of the Lambeth Company, and that company had obtained powers to procure a better supply, but that the principal objection arose, as it was alleged, from the extreme hardness of the water, owing to the salts of lime held in solution. Mr. Tite explained that this question of hardness was suggested as containing the elements of insalubrity and great wastefulness when applied to domestic purposes. That it appeared to him, however, that the Board of Health failed, to a great extent, in their objections, because the only direct evidence of the first opinion was that of Dr. Sutherland, of Liverpool, where it was well known the hardness of the water was much owing to salts of magnesia and sulphates of lime, whereas the hardness of all London water was mainly due to the bi-carbonate of lime. That if this was insalubrious, it might have been easily determined by the evidence of the

physicians of London, and that as to hardness derived from the latter cause, it was well known that in boiling, even for a few minutes, the bi-carbonate parted with its carbonic acid to a large extent, and that much of the carbonate of lime that remained was deposited in a solid shape or coating on the vessels, and which everybody knew from its constant appearance in our teakettles. Mr. Tite then explained that he thought that undue weight had been given to this objection, which, however, led this Board to seek for a supply from the rain waters gathered from the surface of the country, and which system had been adopted in the great towns of the north, such as Bolton and Sheffield, and was now attempted on the very largest scale at Manchester. It appeared to him, however, that these towns possessed advantages which London could not claim, because they had their collecting grounds in mountain ranges, where much more rain fell than near London, and where the gorges of the hills afforded ready means of providing reservoirs, and the nature of the surface also, such as the millstone grits and trap rocks, was a great advantage, because they were non-absorbent to a very great extent. That a similar process has been adopted at Edinburgh by the late Sir John Rennie, who had dammed up some large valleys in the Pentland hills, but that, notwithstanding, in a hot summer, the supply of water at Edinburgh was insufficient in quantity and defective in quality.

The scheme of the Board, it appeared, was to appropriate the rain-fall on 150 square miles of surface on the Bagshot Sands, though it was admitted that these waters were polluted by water from the peat, which, however, one of the witnesses, at page 105 of the Report, thought would not be objectionable, because of the antiseptic nature of such water, “though it was disagreeable in colour and taste.” The Board had suggested the removal of the peat, and that legislative enactments should prevent the occupiers of the lands from manuring also in such a way as should lead to the pollution of the waters. Mr. Tite doubted the practicability of either of these suggestions. He showed, also, that the rain-fall at Greenwich in the year 1840, was only 16½ inches, and in 1847, 17½ inches, though in 1848 it was as much as 33 inches. That, of course, the supply must be calculated for a year of drought, but that this could only be done by the creation of enormous reservoirs. That, in point of fact, the reservoirs of Manchester were calculated for a six months consumption, and would occupy an area of 408 acres with an average depth of 33 feet 5 inches, and that for London it would require at least 800 acres, with a depth of 40 feet. That the soil and site of Bagshot Heath was not adapted for such reservoirs, which could only be created at an enormous expense; and that as the Board of Health desired further that the reservoirs should be covered, the whole scheme appeared an impossibility. Their report further stated that the evaporation amounted annually to from 15 to 20 inches, and that as it was impossible to speak on the average of more than a rainfall of 24 inches, the supply must be inadequate.\* The total quantity of water falling on 150 square miles of ground, at 25 inches for the average fall, would amount to 54,300 millions of gallons, and if only 4 inches of this could be depended upon, or one-sixth of the whole quantity, the total supply would not be one-half of the quantity now supplied, and in seasons of drought very much less. In the report it was stated that by improved methods three-fifths might be collected, but Mr. Tite expressed his wish to show that in an analogous attempt made in France on a very large scale, and under circumstances nearly similar, only one-fifth part reached the reservoirs. The case in France was the attempt made to supply the water of Versailles from gathering ground on a tract of land under geological circumstances analogous to the Bagshot land. The detailed information on this subject had been obligingly furnished him by Mr. Geo. Burnell, and was as follows:—

Brûyère states, in his “Etudes relatives à l’Art des Constructions” (Paris, 1823), that the commission named to inquire into the water-supply of Versailles, in 1810, consisted of De Prony, Heuriet, Rondelot, Girard, Nory, with himself, Brûyère, as reporter or secretary.

He describes the works as a series of catch-water-drains, disposed so as to intercept the rainfall upon a surface of 15,000 hectares, or 37,500 acres English. The average fall is about 0·50 in depth, or 1 foot 8 inches. This would give an annual product of 75,000,000 metres cube, or above 200,000 metres cube per day. From the evaporation, infiltration, loss in the catch-water-drains, &c., no more than 4,000 metres cube are really obtained.

These works were executed by a M. Gobert, under the orders of Colbert, between the years 1680 and 1702. The first portion executed was that by which the water falling upon the plains of Trappes, St. Gobert, and Clayes, above the valleys of the

\* Mr. Tite also quoted a year during which, in the very district in question, no rain of any importance had fallen for more than three months, viz. from May to the middle of August.

\* Geological reasons were suggested for its failure.



Yvette, the Bièvre, and the Vesgre, were conducted to the ponds of Hollande, St. Hubert, de la Tour, Pèrrey, Meuil, and St. Denis, and from these to the larger ponds of Trappes, Bois d'Arcy, and Bois Robert.

These works did not yield enough water, and by Colbert's orders similar ones were executed on the plain of Palaiseau, between the valleys of the Yvette and the Bièvre, to lead the rainwaters into the ponds of Villiers, Saclé, Orsigny, and the Trou salé.

The waters of the first division were conducted to a distributing reservoir at Versailles, called the Reservoir de Montboron. Those of the second, to a reservoir in the Parc aux Cerfs.

The works consisted in the necessary dams, flood, and sluice-gates, of 25 ponds—112,000 metres of catch-water drain, and 34,000 metres of aqueduct, between the different ponds; some of these are from 1 to 2 and 3 metres wide; all are executed in meulière, and in a tolerable state of repair.

A large bridge aqueduct at Buc, 600 metres long and 40 metres above the Bièvre; this is in a good state of repair.

Bruyère concludes his article with this important piece of advice:—"Mon intention en exposant ici avec quelque détail les résultats de la grande expérience faite à Versailles, dont la dépense n'a pu être que très considérable, a été de prémunir ceux qui projettent des canaux contre les dangers qu'ils ont à redouter, lesquels espèrent pouvoir les alimenter à l'aide des eaux pluviales rassemblées dans les réservoirs."

Mr. Tite concluded by stating that he was in no manner contented with any of the schemes for the supply of water, and was only led to the subject by its importance; and if it was objected that it was not the proper function for an architect, he would refer to the quotations from Vitruvius, to be found in the report; and he would point also to the period when the architects of Rome and Italy had entrusted to them the duty of supplying Rome, and other cities, with water, which they had performed in a style of magnificence, durability, and success, which had rendered their works, in this branch of architecture, the admiration of the world.\*

#### SUBMARINE FOUNDATIONS.

MR. ALEXANDER GORDON, in a proposition for founding a lighthouse in Skerki Channel, for Keith's Reef,† says he is led to the conclusion that any of the ordinary and more recent systems of submarine foundation would fail in a work which must be executed at a moderate cost, and be perfectly secure in every agitation of the sea and atmosphere. He continues,—I was therefore led to seek out other systems of foundation, and have now arrived at a system of submarine foundations for light-houses and beacons, which has not hitherto been applied, and of the efficiency and permanency of which no doubt can be entertained.

Having obtained footing on the rock (compact limestone), a strong wrought-iron bar should be at once jumped into the centre of the area of the peak, and immediately succeeded by other wrought-iron bars, on which to form a crow's nest, or an open platform: from this the surface and edges of the rock could be cleaned of the large quantity of sea-weed now upon it, and a small crane would enable us to have the edges of this rock trimmed and undercut, and a circular seat rudely prepared about 6 feet under water. It may not however be necessary to go to such a depth. A few sections of this seat will enable us to cast lead slabs weighing a ton and a half or two tons, such as can be dove-tailed into each other, and fastened together with lead joggles and dowels driven in hard, and the whole of the seams closely chinned or caulked with lead. This wall of lead will then be carried up about 15 inches thick, with the seams all chinned together below and above the water line, so as to prevent percolation of water. This lead wall, where above water, will have its seams all run together with a powerful blow-pipe. We may even manage to cast the upper portion of the lead wall upon the lower part.

The original iron rods will now be at their upper ends worked into the inner and dry side of the lead wall, forming bond as we proceed. (At the extreme base of the tower the water will now be shut out by warm gutta percha, and then by hydraulic cement. Lead will then be run in to make the base perfect: a core of masonry perfectly bonded together is to occupy a great part of the interior. The fixed crane-

post may then be built in, and thus be converted into bond and load: even if it should in some degree oxidize, the rust will do good rather than harm.

Lead is no doubt a costly article, but its durability in salt water, the facilities which it affords for making perfect bond, its inertia, and its not being susceptible of vibration, point it out, he considers, as the best material under the circumstances. The lead walls are to be carried up about twenty-four feet above the water-line, and upon them and the core of masonry (the latter in many places bonded together with lead), there will be a superstructure of cast-iron bonded together with wrought-iron floors, and fastened down to the rock by many very strong wrought-iron ties; which latter will not (where there is moisture) be allowed to come in contact with the lead. The junction of the iron shell and the lead wall must have special attention.

Cast-iron he considers wholly inappropriate for such works.

#### Miscellaneous.

**RAILWAY JOTTINGS.**—The 24th or 25th of this month is fixed for the floating of the fourth and last tube of the Britannia-bridge. The third tube has attained its elevation.—"The South-Western Railway," says Herapath, "now takes newspapers to the country, and delivers them at the stations to the parties addressed for the charge of 1d. each. Other railways will, of course, imitate the example, and thus to save one postman in each town an hour's labour, scores, perhaps hundreds, of individuals will be kept from going to church." The postmen are to be themselves pitied, for the financial principle of "less labour, less pay," appears about to be carried out at headquarters, as was to be anticipated. One poor fellow in the country, whose whole weekly allowance is 10s. 6d. (with which, however, he expresses himself contented) yet complains in the *Times* that an order has been issued by the Postmaster-General for a return with the view to a reduction of salaries, and that he has the prospect of losing 1s. 6d. a-week out of his small pittance, from the regard for him so zealously exhibited by those who run no risk in consequence, as he does, of sending the little ones supperless to bed. As for those postmen who petitioned against a "Sabbath-day's journey," certainly much to be regretted,—of course, they must have been prepared for the but too probable consequence—namely, Sunday's leisure without Sunday's pay.—Some additions are about to be erected at the goods department of the Derby station of the Midland Railway on plans by the company's engineers there.—The works of the Leeds and Thirsk line, at Yarm, consisting of a high embankment, a viaduct of thirty-nine arches, each about 39 feet 6 inches span, and varying in elevation from forty to sixty feet, and two stone arches spanning the Tees, are rapidly approaching completion. In the centre of the arches which span the river a shield bears the following inscription:—"Engineers—Thomas Grainger and John Bourne. Superintendent—Joseph Dixon. Contractors—Trowsdale, Jackson, and Garbutt, 1849."

A viaduct on the Whitehaven and Furness line, over the Esk near Ravenglass, was found to be on fire on Friday week. It was constructed principally of Baltic timber, and extended 975 feet in length, 24 feet in width, and about 60 in height. By cutting away the burning portion the flames were extinguished. The extent of damage done is about 130 feet in length. The extension of the line was to have been opened from Bootle to Ravenglass, six miles, on the following Monday. Incendiarism is suspected.

**LIQUIDATION OF THE NATIONAL DEBT.**—A "Threadneedle-street Broker" proposes, in a clearly-written pamphlet recently published,\* to reduce, and ultimately to liquidate, the National Debt, by converting the 3 per cent. stock into terminable annuities. In this way he conceives that stockholders, at present paid with 3l. per 100l., might be paid up in thirty-one years, at the rate of 3l. 5s. per annum. "In other words, the stockholder consents, in considera-

tion of the 3 per cent. interest being guaranteed from reductions for thirty years on 75l., to be repaid the remaining 25l. by yearly instalments of 1l., with interest." This proposition he afterwards modifies, but on the same principle. "The nation," he observes, in speaking of one instalment of the reduction, "owes 523,000,000l. to individuals, who are paid by the nation, out of the taxes, an annual interest of 15,690,000l.; and as little or no provision is made for the liquidation of the capital, at the end of thirty-one years we shall be in the same state, viz., owing 523,000,000l., and paying annually 15,690,000l.; whereas, by the proposed plan, the nation will have paid an increased annual expenditure of 1,307,500l. for thirty-one years; and, at the end of that period, not only will that cease, but also the annuity of 3,922,500l. per annum; and the nation will have liquidated 130,750,000l. of the National Debt, leaving that portion of the debt then to be provided for only 392,250,000l., subject to an annual expenditure for interest of 11,767,500l., instead of 15,690,000l., as at present. If the proposed temporary outgoing of 1,307,500l. cannot be provided for by a decrease of expenditure in other branches of the public service, it will only have to be endured till 1860, when a larger amount will be saved to the public by the falling in of the Long Annuities." The author of this pamphlet, which well deserves attention, is understood to be Mr. Charles Hill, a late sheriff of London.

**MEDALS FOR THE '51 EXHIBITION.**—The committee appointed to select the best designs for medals, namely Lord Colborne, Mr. Dyce, R.A., Mr. Gibson, R.A., Mons. Eugène Lami, Mr. C. Newton, Herr J. D. Passavant, and Dr. Gustave Waagen, selected the following as most deserving of notice:—Nos. 65, 24, 105 (1), 104 (3), 28, and 68. The Commissioners accordingly decided that the 100l. prizes should be awarded to Nos. 65, 24, and 105 (1), and the 50l. prizes to Nos. 104 (3), 28, and 68. On opening the papers attached to these designs, they were found to have been submitted by the following gentlemen:—65, Mons. Hippolyte Bonnardel, of Paris; 24, Mr. Leonard C. Wyon, of London; 105 (1), Mr. G. G. Adams, of London; 104 (3), Mr. John Hancock, of London; 28, Mons. L. Wiener, of Brussels; 68, Mons. Gayraud, of Paris. Three of these, namely, Nos. 24, 105, and 104 (the three Englishmen, as it happens), were named amongst the few we pointed out for notice. As to the others, we may have something to say hereafter.

**WESTMINSTER HALL.**—The report again promulgated, that the roof of the hall is to be raised, has been formally denied by Mr. Barry. We thought we had set the matter at rest long ago.

**ESTIMATES FOR SEWERS.**—The following tenders were made for building 574 feet of pipe sewer at the back of Edward-square, Kensington. Surveyor's estimate, 230l.

Kamester.....	£190 7 0
Hill.....	175 0 0
Cooper.....	143 0 0
Humphreys and Thirst.....	129 6 0
Brooks.....	123 0 0
Jarvis.....	109 12 0
Williams.....	105 0 0

**WIDE ESTIMATING.**—Sir,—For a country church, to be erected in a village called Lydbrook, in the lower part of Gloucestershire, tenders were delivered and opened last week as follows:—

Myers, London.....	£4,800
Coleman, Westbury, near Gloucester.....	3,900
Roberts, Monmouth.....	3,565
Pearson, Ross, Herefordshire.....	2,500

I think, instead of heading this "Blind Builders," you may say "Mad Builders."

A RESIDENT.

List of tenders delivered July 3, for building a Gothic villa at Frankham, near Tunbridge Wells (Mr. Beck, architect): each party took out his own quantities:—

Cox, H. A., Godalming.....	£2,450 0
Walker and Soper, London.....	1,865 0
Barrett, Tunbridge Wells.....	1,690 6
Punnett and Maynard, Tunbridge, (accepted).....	1,580 0
Bilson, West Malling.....	1,445 0
Rowe, John, Hastings.....	1,076 14

\* Mr. Homersham, Mr. Clutterbuck, Mr. P'Anson, and others spoke, but our space is exhausted.  
† Printed in full in the *Nautical Magazine* for June.

\* The Reduction and Liquidation of the National Debt. By "A Threadneedle-street Broker." Mann, Cornhill, 1850.



**TREATMENT OF BUILDERS.**—One of the contracts on the West Riding Union Railways being nearly completed, some cottages were required to be built for road-side stations and crossings; and two individuals were asked by one of the *agents* of the contractor to tender for the building of them. The tender of P. was 140*l.* that of T. 93*l.* or 92*l.* P. being a favourite, was told the amount of the other's tender, and was again asked to revise his; he, no doubt, thinking he would be favoured, offered to build them for 110*l.*; but I suppose it would have been too barefaced to have given them to him to do for more than 92*l.* so he ultimately got them (three of them) by reducing his tender to 91*l.* 15*s.* Comments upon such acts, by me, are useless after your oft-repeated, but just and powerful remarks; but the contemptible meanness of those who could ask a man (and that a poor one) to devote his time in making an estimate, and to tell him that if he was as low as possible he might get them all to build; and then, with the promise on his lips, to examine the tender given by him in all faith as to an honourable man, for the base purpose of giving the contract to a favourite of his own, at a fraction less, to avoid the appearance of partiality,—I say such conduct deserves the reward of all acts which are opposed to morality and justice.—H.

**VICTORIA DOCK, HULL.**—The formal opening of this dock took place on Wednesday in last week. The area of the dock and its half-tide basin is about 15 acres. The length of quay round both is 15-16ths of a mile, the quantity of quay-room nearly 20 acres, of which 13 are round the dock, and 6½ round the basin. The sill of the 60 feet entrance to the dock is laid two feet lower than that of the Humber dock. The east end of the dock, which is 468 feet wide, is sloped with an inclination of 4 to 1, and laid with granite paving stones. The breadth of slope or quay above high water of spring tides is 200 feet. The north quay is also sloped. The entrance is half a mile eastward of that of the harbour. The form of this dock is irregular, to suit that of the citadel, to which it forms a second moat. In construction the following materials have been used:—

Timber .....	350,000 cubic feet.
Stone .....	2,376,000 cubic feet.
Earth work .....	937,000 cubic yards.
Mortar .....	21,500 cubic yards.
Iron .....	60 tons.

The plans for the last link of the present series of docks at Hull, namely, the Drypool Basin, and entrance to Victoria Dock, await the sanction of the Admiralty, which, according to our authority, the *Hull Packet*, is expected forthwith. Nearly 20 acres of dock will thus have been added of late years to the Hull shipping accommodation.

**SMOKE NUISANCE.**—Mr. Simon, the city medical officer of health, has reported, to the Commissioners of Sewers, favourably on the general objects of the Smoke Prohibition Bill, as highly desirable both for health, for economy in cleansing, and for other reasons, but unfavourably on its extent and restrictions, being limited to the smoke of fixed steam-engine furnaces, whereas the nuisance from locomotive steam-engine furnaces, both on the river and by rail, is equally great, as is that from many furnaces altogether unconnected with steam. The passing of such a measure, however, even in its present state, he concludes, will sharpen mechanical invention and ultimately economise the expenditure of fuel, not only among those compelled by this Bill to consume the smoke now wasted, but even in private dwellings, to the special profit of individuals, and the general benefit of the public.

**METROPOLITAN SEWERS COMMISSION.**—A monthly court was held on 5th inst., Lord Ebrington in the chair, when it was ordered that not less than 100 copies be made from the engraving of the block-plan of the metropolis; and authority was then granted for the performance of sewage-works estimated to cost about 11,500*l.*, including 7,900*l.* for improvement of the sewage of Holloway, by enlarging Hackney-brook sewer. In allusion to sewers near London and Blackfriars bridges, the chairman said they were only temporary, till their general plan was carried out. The other business related chiefly to the abatement of nuisances.

**LAMP-LIGHTING BY ELECTRICITY.**—As many of our readers may recollect, we some time ago suggested means for simultaneously lighting, and subsequently for extinguishing, the gas-lamps of a whole town or district, the lighting to be effected by galvanic action, and the extinction by the electro-magnet, arranged in the same apparatus, so as to turn off as well as turn on the gas. In quoting the following particulars by the Paris correspondent of the *Times*, we think it worth while noting these preliminary facts:—"A rapid and scientific mode of lighting and extinguishing public gasburners has been invented by a person named Villatte. The opening of the burner of each lamp is covered with a piece of soft iron, mounted upon a hinge. In connection with this is a wire extending from a galvanic battery the entire length of the service of the gas-lamps, and close to the orifice of each burner is a small slip of platina. The soft iron, becoming a magnet when acted upon by the electric fluid, opens or closes the orifice according to the motion imparted to it; the platina ignites when it is necessary to light the lamps; and thus every lamp in a large town may be lighted simultaneously, or extinguished in the same way, by a different action on the magnetized iron." N.B. THE BUILDER is very well known in Paris.

**PARISH MAPS AND OTHER MATTERS.**—Under this title a very sensible letter has been publicly addressed by Mr. C. R. Walsh, M.R.C.S., a Superintending Inspector of the Board of Health, to the parochial authorities of the parishes and unions of St. George, Southwark, St. Saviour, St. Olave, and Bermondsey, exhorting them to obtain parish maps, for sanitary noting, and provide parochial dwellings and lodging-houses for the industrious poor, almshouses for the decayed poor of good character, parish dispensaries and infirmaries, street orderlies, &c. As to the maps, Mr. Walsh says—"To my surprise I find that such a map was published in 1815, and that the engraved plates might be altered so as accurately to represent the features of the present day at a cost of about 25*l.* for each parish. A guarantee to take fifty copies at 10*s.* would ensure this map being completed in less than a month. . . . The great mortality from cholera on the south side of the Thames is an undeniable fact. Much difference of opinion exists as to its causes. Such a map would be an unquestionable indication of an honest desire to investigate these causes by affording every facility for the observation and comparison which are needed to trace them."

**GREAT SALE OF LAND AT BIRKENHEAD.**—For the land situate in Birkenhead Park the bidding was brisk, and most of the lots sold at an advance upon the upset price, which ranged from 5*s.* 6*d.* to 9*s.* a yard, in lots of from 3,000 to 29,000 yards each. For the other land belonging to the commissioners, called the Cemetery Estate, the forest land, and land adjoining the market, there was no bidding. Previous to the sale, we understand, the commissioners disposed of land in the park privately to the value of 33,000*l.*

**ANTS.**—The *Medical Times* says that ants are easily dislodged by pouring lime-water into their abodes, and as easily poisoned by arsenic.

**THE KINGSTON "KINGS' STONE."**—We mentioned a short time since that the corporation of Kingston had listened to those who had prompted rescuing from obscurity the stone on which the Saxon Kings were crowned, and setting it up on a pedestal. We are now informed that this Coronation Stone will be placed on a septagonal block of stone, six feet in diameter, and 15 inches thick, standing in the centre of seven stone pillars, connected together by an iron railing. These pillars, and the septagonal form of the monument, are in allusion to the seven kings crowned in the town, and a penny of each monarch is to be placed under their respective names.\* The shafts of the pillars are of blue Purbeck stone, polished, and the capitals of Caen stone. The spot chosen for the monument is in the open space near Clattern-bridge, in front of the Assize Courts, at the entrance of the Market-place, where some of the coronations took place.

\* This part of the arrangement may as well be omitted.

**EXTENSION OF SCAGLIOLA.**—I observed a remark in your last number in which I cordially agree, that is, let plastic material represent itself. Scagliola is a very beautiful means of decoration, and particularly well suited to our sooty town, presenting as it does a highly polished surface. But why should it represent marble? Why not form regular patterns with the same means? It would be worth while to go to some expense, as the colour is permanent: its beauty might be increased by adding the refuse metal from glass works the refuse even from the green bottles I have seen used with good effect. There is no reason why scagliola should then be confined to columns and pilasters; it might be employed to give effect to styles in the decoration of clubs and public rooms, the panel being kept in flat colour for contrast. I hope the exhibition of '51 will show us that scagliola is capable of expansion, and is not to be used only as an imitative material.—COMPASS.

**MONUMENTS TO SIR ROBERT PEEL.**—Propositions are already starting up throughout the country for the collection of subscriptions for the erection of monuments to this distinguished gentleman. One of these relates to the re-erection of Drayton Bassett Church, the place of his interment; another to the erection of a statue or monument at Manchester, the subscription to which at once opened with 300*l.*, expected to be increased to 1,000*l.* and upwards on the market-day following; and another is for the collection of a penny subscription throughout the country, for the erection of a poor man's monument to Sir Robert's memory.

**EFFECT OF SHOT ON IRON VESSELS.**—Some experiments have been made at Portsmouth, from which it appears that the shot is shivered to atoms on striking the iron; the fractured pieces of shot, the splinters from the iron plates, and the longer and more dangerous pins from the iron ribs, rendering the striking of a large hollow shot more terrific to an iron vessel than the bursting of a shell on board. A butt is to be practised at where the iron plates will be cased inside with strong planking.

**ANOTHER BREAK-DOWN OF A FRENCH SUSPENSION BRIDGE.**—Near a town called Fumel (Lot-et-Garonne), a suspension-bridge over the river Lot recently broke down, first in the centre and then at the chains, as four men were repairing it. Three men were drowned, and others severely injured. It is said that most of the suspension-bridges in France, with the exception of those very recently constructed, are in a similarly dangerous condition.

"A PLEA FOR THE VERY POOR," is the first general Report of the Committee of the Leicester-square "Mount St. Bernard Hospice." It gives some startling details of the condition of the poor in the metropolis, and ought to obtain for this society a further increase of public support.

#### TENDERS

For works to be performed for the Committee of Governors of Emanuel Hospital, Westminster, in the erection of a School and Dormitory for the Boys admitted into that Institution. Mr. Bunning, architect.

Cubitt and Co. ....	£1,650 0 0
Pritchard .....	1,647 0 0
Piper .....	1,601 0 0
Grimes .....	1,544 0 0
Holland .....	1,523 0 0
King .....	1,447 0 0
The architect's estimate was £1,500.	

#### BUILDINGS AND MONUMENTS,

MODERN AND MEDIEVAL;

Being Illustrations of the Edifices of the Nineteenth Century, and of some of the Architectural Works of the Middle Ages.

By GEO. GODWIN, F.R.S.,

Fellow of the Institute of Architects; Corresponding Member of several Societies.

The Eighth and concluding part of the above work is just published. It contains—The Olympic Theatre, London; St. Aidan's College, Birkenhead; Kneller Hall Training-school, Whittington; Portal of St. Laurens Church, Nuremberg; Bishop Alcock's Chapel, Ely Cathedral; Lincoln Cathedral, east end; St. Mary's Church, West Brompton; and the New House of Commons, Westminster; also an Index.

The work will be issued as a volume, handsomely bound, forthwith.

To be had at the Office of "The Builder," 2, York-street, Covent Garden, or, by order, of any Bookseller.



Southampton-buildings, Chancery-lane, London.







# The Builder.

No. CCCLXXXIX.

SATURDAY, JULY 20, 1850.

**F**RIENDS and foes to the proposed International Exhibition of 1851, are alike anxiously inquiring the determination as to the intended structure in Hyde-park. The sad mistake made by the Building Committee gave a chance to the latter which they never expected, and jeopardised the scheme: it is to be hoped, however, that this may yet be overcome, and the exhibition be successfully carried out. Error has, unhappily, marked nearly every step yet taken in the endeavour to conduct the undertaking. That this has been the case, none grieve at more than we do, but while we refuse to join in vulgar and indiscriminate abuse of men who are, we believe, acting quite disinterestedly, we must not, by silence where objection is demanded, give ground of reproach to some of our correspondents, who taunt us, undeservedly, with desire to shield individuals from merited reprehension. It was sufficient for us to expose the injustice of the *continental* report of the Building Committee, without calling bad names; and when we pointed out, in a few quiet lines, the real size of the abandoned dome—inquired which of the Committee, individually, would take the responsibility of its stability—and advised the abandonment of brick walls—we sufficiently drew attention to the matter, and marked our own opinion of the erroneous design, without immediately saying, point blank, to such justly distinguished men as Messrs. Barry, Brunel, Cockerell, W. Cubitt, Donaldson, and Stephenson, you are altogether wrong, and have put forward an absurdity which will not be carried out. That they were altogether wrong we were just as fully satisfied then, as they are themselves, we suppose, now.

The only mode apparent to us of accounting for their mistake, is the belief that they did not intend the building to come down again. They were scarcely aware of the strong and proper feeling which exists against permanently covering in one foot of the Parks, and thought this a quiet way of providing the metropolis with a National Gallery of Art.

The tenders for the building, according to the published plan, were received on the 10th inst. In one shape or another about nineteen were sent in, but there were not more than eight for the complete structure, and these, we believe, ranged from the sum of 150,000*l.* down to 120,000*l.*

Among the parties who tendered, we may name Messrs. Brassey; Hennett; Jay; Fox and Henderson; Perks and Mackeen; Swaine and Bovill; and Turner, of Dublin; though the tender of the latter, it is said, was not in a sufficiently complete form to be taken into consideration.

The "specification of contract for the works" contained intimation, in three lines at the close, that "Tenders for methods of construction other than those shown upon the Drawings, and described in the Specifications, would be entertained, but on condition only of their being accompanied by working drawings and specifications, and fully-priced bills of quantities." This mixing together of a com-

petition for designs and a competition for prices seemed to us open to many objections, involving injustice to those who had submitted designs in the first competition. Obviously, any person who has seen a heap of rejected suggestions for effecting any particular object, is in a much better position to succeed than one who has not. The intention, apparently however, was, not that *designers* should again enter the field, but that practical men, in making their estimates, should have the opportunity of suggesting cheaper or better ways of doing the same thing,— "methods of construction other than those shown upon the drawings."

Be this as it may, an entirely fresh design by Mr. Paxton, was sent in, accompanied by a tender from contractors to execute it for about 105,000*l.* This design, with alterations, to which we shall allude, will be carried out: it appears to have been viewed as a means of escape from a difficulty, and was jumped at. A view, with description of it as at first proposed, has been so widely circulated that most of our readers have probably seen it. It follows the plan published by the committee to the extent of being a long parallelogram: the frame-work is of iron, the sides, ends, and roof are glass. It is in three stories, one behind the other, so that the ends show as a pyramid of three steps: the roofs are drawn as if flat, but according to an explanatory letter from Mr. Paxton to the *Times*, "the construction of the roof does not even approach to flatness, but is so arranged with ridges and valleys as to carry off water much quicker than roofs of the ordinary kind."

In setting forth the advantages of the plan, the designer says it gives an opportunity of introducing, at a small cost, six galleries, each 24 feet wide, of the entire length of the building, by which the floor-surface will be increased above one-third; that the whole outside surface of the roof will be covered with unbleached canvass, which will render breakage from hail impossible; that there will be a very large extent of surface fitted with luffer-boards, capable of being opened and shut, as occasion may require, to ensure a proper supply of pure air, the amount of which may be modified by passing through canvass, kept wet in very hot weather; that by employing iron, wood, and glass only in the superstructure, the building will, from the moment of its erection, be ready for decoration and occupation; that the weight of materials in this structure will not exceed one-fourth of those necessary for a brick building; and that "the construction of this building has been so arranged, as to admit of all its parts being prepared and delivered ready for fixing in place, and being put together and taken down far more easily than an ordinary brick building, which will greatly reduce all the constructive operations on the ground, lessen the number of labourers employed, and any amount of possible inconvenience to the neighbourhood."

The alterations in the design are mainly these: a keel-shaped fourth story, and a transept running north and south, so as to break up the long line of front, have been added. The total height will now be 100 feet, sufficient to inclose the *highest of the trees on the ground*, and Messrs. Fox and Henderson have taken the contract for its execution, to be completed in the present year, for the sum of 85,500*l.*—the materials, if we understand rightly, remaining their property.

As to the general construction, we have no

means of judging, and we will not now look for objections to the design, so far as the intention is made known to us. Some, however, are tolerably obvious. We revert to those architects and others who originally sent in designs, simply to say, that they are still waiting for the Committee to redeem the pledge contained in the rules and conditions issued by them, wherein it is stated, that "as the credit of any such plan will be due solely to the contributors, the Committee propose to make a report, in which they will acknowledge by name those whose plans had been wholly or partially adopted, or who had afforded the most useful suggestions; and the Committee hope to be able to offer such other honorary distinction to the successful contributors as the circumstances may appear to warrant."

As to the wide-spreading book of lithographed plans, sections, and details, published by the committee, at the small charge of 5*l.* 5*s.*, this may now be put away amongst the curiosities of architectural experience. We are unable, however, even yet to congratulate the Committee on having got out of the mess.

In the recent selection of designs for the medals to be struck for the reward of Exhibitors, the same undue desire to distinguish foreign artists that was shown by the Building Committee, seems to have been exhibited. We are sick, however, of finding fault.

It has been the fashion to regard this exhibition of medals as an unfavourable response to the invitation of the Royal Commission; but we cannot think so. The public has been disappointed by its own unreasonable expectations: it vaguely looked for multiplicity and variety, where a due consideration would have taught it to expect little—to have sought the concrete and epigrammatic: the object of the competition was necessarily surrounded with limitations—limited by the laws of medal art—limited in size—and limited to a small circle of ideas: under these circumstances we cannot but think that the call was well responded to. The frequent recurrence of one idea must strike every observer; but this was to be expected.

Those who put aside the first thought and expressed a fresh idea, at all events, deserve notice. Such, for example, as No. 50 (the Trial of the Lever); No. 113 (Science and Handicraft); and No. 75, a clever attempt to express the characteristics of Britain in a single figure, standing on a rock inscribed with Peace, calling the nations of the earth to the exhibition of 1851; her garments fluttering in the gales of her stormy isle,—her beacon burning as a guide to nations,—her attributes of force, the lion, &c., discarded.

We will briefly describe what seems to us the intention of the six selected designs. No. 1, by Mons. Bonnardel, shows Mercury holding a female figure by the hand (intended to represent Industry apparently, from the anvil, locomotive, &c., near her), in front of a thick-set figure of Britannia standing on a slightly raised platform, with both hands extended holding wreaths: flags of different nations make up the back ground.

In No. 2, by Mr. Leonard Wyon, Britannia seated is crowning Industry, a female figure, whose dress is powdered with bees: figures of the four quarters of the globe stand behind her. No. 3, by Mr. G. G. Adams, is a gracefully modelled group in low relief of Fame, Industry, and Commerce. No. 4, by Mr. Hancock (who gained the premium offered last year by the Art-Union of London), con-



sists of Britannia, with Wisdom, on one side, and Justice on the other, holding a wreath towards Painting, Sculpture, and Science. No. 5, by Mons. Wiener, is a crowded composition (even in present size), representing the various nations of the world bringing produce to Britain; and No. 6, by Mons. Gayard, is a clumsy, well-draped single figure of Britannia, occupying the whole field of the medal, with a shield in one hand and wreaths and a palm-branch in the other.

We would here take the liberty of remarking, that when gentlemen accept office to examine into the merits of works submitted in competition, they ought in justice to make a point of attending. In the present case, we are told, that on the first day appointed for the examination, only three of the Committees were present, and a well-known wood-carver, who happened to put his head into the room, was actually invited to assist in the decision.

#### ARCHITECTS AND BUILDING COMMITTEES.

##### BRADFORD NEW WORKHOUSE.

THE Bradford guardians appear to be worrying the unfortunate "fortunate competitor" in the late competition, to whom the task of erecting the new workhouse has been entrusted. A whole column of the local paper of last week is occupied by a discussion as to whether or not the guardians should themselves appoint the clerk of the works, independently of the architect, a clerk to overlook the architect, in fact, as one of the guardians correctly said. This they decided in the affirmative, coolly telling the architect, in reply to his protest against the course, that he might, if he pleased, appoint another clerk at his own expense!

Some of the guardians expressed their astonishment that any objection should be raised to the course they proposed to take, contending that, as they could have no practical knowledge of building, they were only seeking to appoint a person to superintend the works for them! All the architect asked was, that the board should recommend a certain number, and that he should select the most fitting one, and have control over him. But, no. These sharp-sighted individuals, having a cat to watch the mice, must now get some one to watch the cat. The architect asked for a week to consider what course he should adopt under the circumstances. His right course would be to resign the commission if the board will not give up their improper and unwise determination. All architects, however, cannot afford to maintain their position; and unfortunately, if the architect in this case were to put such an alternative, some architect or other would speedily be found mean-spirited enough to fill his place. Architects do not stand by each other as they should do; there is very little *esprit de corps* amongst them. When apparent personal advantage is pitted against the welfare of the body, the latter goes to the wall. If the motto, instead of being "Every man for himself," were "Every man for each," the result would be different. They now singly beat each other.

To Boards of Guardians and Building Committees, we say with earnestness, satisfy yourselves thoroughly as to the ability, discretion, and integrity of your architect before you appoint him; but when you have appointed him, put full confidence in him; interfere with the works as little as possible; remember that his time and mind are his stock in trade—the only things he has to sell, and that unnecessarily occupying one or disturbing the other is injurious not merely to himself but to your own interests.

THE AMSTERDAM WATER-SUPPLY.—The new company for the supply of soft spring-water to the City of Amsterdam is now in active course of formation. At present, the whole city is supplied by a boat water-company from stagnant tanks, at rates ranging from somewhat less than a farthing, to sometimes as much as a penny for every gallon. The new company intend to supply their more wholesome article at a mere trifle in comparison with these heavy charges.

#### ON LINEAL EXPRESSION AND ARCHITECTURAL DESIGN.

THERE are many men of various dispositions, but more especially of that turn called practical, who hold all such inquiries as the following to be vain speculations, and the accurate definition of words as mere philosophical play and absurd. What they do, they do; and that satisfies them. I would remind such of the words of Locke:—"Those who have particular callings ought to understand them, and it is no unreasonable proposal, nor impossible to be compassed, that they should think and reason rightly about their daily employment." Surely it is a natural and laudable desire in all men to know when they do this or that, why they do it, and, if they cannot, to know the reason of their inability. I would ask those who object to the nice distinction of words as frivolous and useless, whether words do not represent ideas, and whether ideas are not the source of knowledge? Consequently, if our words are confused, our ideas are confused, and our knowledge; and in the same way, if our words are distinct, our ideas are distinct,—our knowledge distinct; and before we investigate any subject, it is absolutely necessary to get and fix in our minds clear and complete ideas, and give them proper and constant names,—in fact, to know what we are talking about.

And most extraordinary is it to find the investigations on art, of the present, as of the past, full of this confusion of ideas; and little extraordinary is it, that unless the student take their dicta as unquestionable truth, he should rise from their perusal more perplexed and dissatisfied than before.

The science of all art, but most especially of architecture, is, I believe, very incomplete; and to arrive at its principles, we must begin afresh, putting aside the complex and abstruse speculations of the mere philosopher; the illogical method of attempting to explain its principles on those of another science, be it music, geometry, or arithmetic; and the generalising obscurity of ordinary conversation. In order to arrive at the truth, we must seek it for truth's sake, and not to confirm every idle fancy of our own. All that is required for this purpose is observation, method, and reflection: with these only can we expect to obtain our object—an object the more important as art becomes more generally practised, and is no longer confined to the care of true genius alone.

Our language supplies us with three words, which to every man of ordinary perception convey three distinct impressions,—grandeur, beauty, picturesqueness. If you call up visible objects to portray these words, or the ideas they convey to you, those objects will assuredly differ; and though, in the usual thoughtless manner of expressing ourselves, we might call them all beautiful, yet the definition, on consideration, would appear evidently inapplicable. An Alpine mountain, the Apollo Belvidere, and an old country church, can never come under one distinctive appellation, but are three separate qualities, requiring three separate words to explain them. It is true that they exist, in some degree, united in certain objects, but this is quite another subject for inquiry. Our advantage lies in simplifying, not in confusing our ideas; and if we can but conceive these three qualities as separate and distinct, which surely we can, one essential point in our favour is gained, and we can inquire into the nature of each separately, and discover the links by which they join one into the other.

To my mind, then, these are three strikingly distinct varieties of form, for it must be remembered that of form alone I speak, and the reader must consider that it is outline alone, as of plane geometry, which engages his attention, without colour, facial expression, or texture.

Having, then, made some reflections on this principle, which may be called abstract, as to the effect of certain lines, I will, without asserting my belief in their correctness, enumerate them. The circle is generally considered the most perfect of all forms—self-containing, without beginning or end—the emblem of the Deity. When divided into a semi-circle, it is still calm, continuous, self-relying, and truly grand. It is the form of the rainbow, which, as far as it goes, is a perfect form. I do not

think it is a prejudice which induces me to think that a pointed rainbow would not be equally grand or beautiful, for the pointed outline is an imperfect or compound form; it possesses the angular character of the picturesque. When I ask myself what is the cause of grandeur or strength (an indispensable attribute of grandeur), connected with beauty, being impressed on my mind by the rainbow, the semi-circular arch, the full moon, and the biceps when compressed to strike, cannot but perceive that the primary cause, as far as outline is concerned, is the circular form.

In the beam of a ship, in an egg, in all the outlines of graceful humanity, in the belling of a sail, in the forms of Grecian art, in the gentle swell of a hill, in the movements of the snake, the leaf of the water-lily, the rolling wave,—it is beauty which is impressed on my mind, in a greater or less degree, according to the nature of the outline, and in all does the ovoid principle enter. Each of these forms in a compound state, if continuously joined, produces also more of beauty connected with strength in the circle, as seen in a moulding, and of beauty connected with grace as seen in the same moulding formed from ovoids.

This grace turns to weak delicacy in the cinque-cento moulding of Italy. This difference of character, arising from a greater or less degree of swelling in the curve, is more clearly seen in the muscles of the male and female.

The curves of either of these forms, compound, but incontinuously so, present to me the quality of picturesqueness, as in the holly leaf, the thistle, shells of these forms, the outline of a sail full of wind, the wing of the swallow-tail butterfly, a bird's bill, the foliations of Gothic ornament, the forms of its heraldic shields, and of its mouldings, in the Pointed arch itself, and in many of the single leaves of Moorish ornament.

As regards curves, then, we must come to the conclusion, I think, that a medium curvature expresses beauty as a centre; that as this tends to circularity, it expresses beautiful strength; and as it tends to a lesser curvature it expresses grace (the Apollo, the Hercules, and the Venus are examples of this, in a compound form, continuously varied); and that any compound series of curves, incontinuously and irregular, produces picturesqueness.

A straight line in itself expresses to me only straightness; but in its most simple compound and regular state, the right angle, it does allowedly represent strength; and formed into a square, still strength. To my mind it presents no other quality or character *per se*.

It seems almost unnecessary to prove by examples how it represents strength: we see it in all buildings, and the eye alone informs us that the slightest deviation from it tends to weakness. Strength, as before said, is undividable from grandeur. Size and strength will, in a measure, produce this character by themselves, as seen in the Cyclopean walls of antiquity. The square and the circle have, then, at least one distinct harmonising quality.

All angles less than the right angle impress the idea of sharpness; the more acute the angle the more sharp does it become. Now, the objects in which we find this form are all more or less picturesque, and the more compound and disjointed, the more picturesque.

We see this in crystalline formations, such as basal and spar, &c., the serrated ridges of rocks, icebergs, many trees and leaves (the ivy being one), old houses, and particularly in Gothic architecture and ornament. The mixture of both angles and curves, however, is most usual, and is found throughout picturesque nature and art.

Those objects, however, in which the angles predominate, such as ruins, trees, and rocks, are merely purely picturesque, whilst those in which continuous curves predominate are more confirmedly beautiful, as in birds, fish, many leaves, flowers, the hulls of well-built vessels, and their indented sails. When, for instance, either of the last become broken, they become more picturesque; and may we not, putting all mental associations on one side, ascribe this to the altered and more jagged outline they have gained.

As regards the power of straight lines in producing beauty, where can we find an example? It would seem that what most answers to beauty arises in any combination of straight lines, from their relative proportion and sym-



metrical harmony. For I can recollect no single form of lines, any triangle or polygon, which by itself gives one the idea of beauty, which is inseparably with harmoniously joined curves.

Although the obtuse angle in itself appears weak and ugly, yet when it is formed into an obtuse-angled triangle, as in a pediment, this disappears; and the more obtuse, according to the Greek practice, consistently with the whole mass, the more did it fall in with the prevailing character of their intention—the beautiful; and the more obtuse these angles become, the more do they assimilate to the form of the circle, as seen in the octagon, for instance; and certainly we should admire that outline as a pier ornament more than we should a tetragon.

Straight lines, without the aid of curves, are incapable, it would seem, of producing actual beauty; but they are capable of producing actual picturesqueness, as before mentioned, and become fanciful and charming in the mosaic work of the Moors and ancient Christians. Straight lines, then, are aids for certain developments of the beautiful, seen especially in architecture, and curves are aids to the picturesque.

Straight lines are not indispensable to beauty, and cannot produce it, but they produce picturesqueness, whose characteristic is irregularity: this is certainly true, but they produce also regularity, which constitutes one of the architect's principal means of pleasing the eye. The square is the only regular and perfect form bounded by right lines, and from this does the architect work out proportion. Now, the proportion made by right lines alone, as of columns, in the elementary works on architecture, can be nothing more than good, excellent, well-proportioned, whatever expression of that nature you like,—never beautiful. For excellence of proportion is not beauty, though one of its attributes in certain cases. A double square may be more pleasing than a single one, as an aperture, but to call it beautiful would be to call it what it is not. The proportions of a room are never beautiful, but excellent. Nor can right lines, or straight lines, in themselves, or in forming squares, or in any combination whatever with themselves, produce beauty. The chief power of straight lines consists in their irregularity; and then, in irregularity, unproductive of beauty, which must have at least a predominance of curved outlines. That which is not beautiful in itself cannot produce beauty by any combination with itself, but it may and does, in this case, assimilate to beauty. All we can say of such forms is, that they are well adapted to their particular purposes. Proportion certainly bears an analogous character to beauty and grace, but, in itself, this analogous character or quality is not strongly marked.

The adjustment of lines, then, in any combinations with themselves alone, does not produce beauty, and should be carefully separated, therefore, from the idea of beauty. But the assimilating power contained in the simplest combination and division of right lines, as shown in the square, may be exemplified by this,—that the square itself is simply strong. The double square assimilates well with beauty, more than the double square with grace, and less than the true square with clumsiness. Inasmuch, then, as there is an analogy of proportion, we may not unjustly say, beautifully or gracefully proportioned.

The nearest approach to what one might term beauty as formed by straight lines, is to be found in some of the Moorish and Byzantine geometrical mosaics. This is, however, the glory of actual regularity in apparent irregularity, and the mind is delighted by weaving out an ingenious system of order from apparent confusion.

Variety and irregularity—words which have just frequently occurred, though constantly confounded by writers—are two different things. We should, I think, call the outline of the human body the most varied, whilst we should call the outline of an oak one of the most irregular. The curve can produce both variety and irregularity,—the straight line only one, irregularity. The continuous variety of the curve produces beauty. Its incontinuity, variety, which is truly irregularity, and the irregularity of straight lines, picturesqueness. When one lays it down that irregularity is

beauty, it is little less than saying, that straight lines are curves.

The outline of the earth is picturesque in proportion to its irregularity. The outline of animated nature is beautiful in proportion as it is varied. Man, being the most varied, is also the most beautiful. Rocks and trees, being the most irregular, are also the most picturesque.

We cannot be too particular in clearly defining what our words mean; without it we address each other in vain, and this laxness of expression, which confounds beauty with picturesqueness, and variety with irregularity, is destructive of all chance of arriving at truths, wanted in no art or science more than in architecture.

From what has been said, we arrive at the following conclusions:—That there are two fundamental and different means of producing form, viz., curved lines and straight lines. Beauty is that character of form which is produced by varied and continuous curves, and consequently exists in any single curve and is cognate with it. Though straight lines be introduced in combination with them, still beautiful may be predicated of any form in which the continuous curves predominate. It is evident that if curved lines are indispensable to this character, and produce it without other aid, straight lines are not indispensable, and do not produce it without other aid. But straight lines do produce a character which we may define as picturesque. Irregularity has been shown to be its primary feature, therefore, whatever adds to its irregularity adds to its picturesqueness. Now, broken curves are irregular, and perfect picturesqueness is formed of these in conjunction with broken straight lines. And though continuous curves even be combined with them, yet wherever the former predominate, the picturesque may be predicated. Further, straight lines rectilinearly adjusted produce regularity and proportion, into which bases, the most complicate arrangements of them can be reduced.

There is one character, that of grandeur, which requires our attention. It is independent of curves or angles to any complicated extent, may be formed of either, and being equally producible by right lines, deserves, especially for architects, a place *per se*. Magnitude and strength, though bounded by the outline of the pyramids or the rainbow alone (a simple semi-circle and triangle) will produce it, and in these cases it requires a very nice perception to see that one is beautifully, the other picturesquely, grand. An immense wall formed at right lines is merely grand. Magnitude and strength are indispensable to its production, and will, by themselves, then, in the simplest possible form—that last mentioned—produce it. In whatever grandeur exists, if the continuous curves predominate, we get the beautifully grand, seen to perfection in colossal statues, less perfectly in some of the English mountains: Helvellyn, for instance, in the rolling waves of the Atlantic, and domes. If the angles predominate, we get the picturesquely grand, as in the outlines of the Alps; Capri, near Naples; a pine forest; the spires and towers of Gothic architecture. We find that in all these last cases, we must use a compound expression clearly to define their character; whereas, in the rainbow and pyramids, independent of colour, we should at once define them as grand. Although, as before observed, they are not solely so in reality, yet the forms are so simple that we can have the adverb. This being the case, it is evident that a certain degree of monotony is inseparable from the simply grand; and as we have set forth variety as the primary feature of perfect beauty, and irregularity of the perfectly picturesque, so we may consider simplicity a primary feature of the perfectly grand.

To have a definite notion of the difference of each of these qualities is what I have in view, and when once they stand out clearly from each other in the imagination and in fact, it is then time to inquire how they act in conjunction and opposition, and what is the effect so produced.

From what we can imagine of excellence in these qualities, from the examples given us for study, it would seem, on first reflection, that to join the strongly marked features of each quality in one subject, would be fundamentally wrong and actually disagreeable. Yet

in architecture this is constantly done; and some, in their dreams of a novel style, have said, that the time may come when some great genius, joining the peculiar excellences of various styles, shall form an original and new system of design. The fact and the hypothesis may, I think, be demonstrated as equally wrong.

J. B. WARING.

#### ORNAMENTAL ART.

PALLADIO: LOUIS QUATORZE: LUDWIG I. OF BAVARIA.

THE lecture of Mr. Ralph Wornum, at the Government School of Design, on Friday evening last week, related to the varieties or styles of decorative art which appeared in, or rather after, the Renaissance, of which a former lecture treated.

The more modern styles, said the lecturer, start from the Cinquecento. That classical revival led to a sort of pedantic cultivation of the antique by the leading men of the period. The great apostles of this classical pedantry were Serlio, Vignola, Palladio, and Scamozzi; and the great type of their style was the Colosseum.

Palladio, the greatest of these masters, built his taste on measurements of ancient buildings, and on the writings of Vitruvius, and Alberti—a principal master of the Renaissance. Palladio may be said to be the founder of the modern club-house style, of Italian architecture,—the Italian palace in its most finished character. The little town of Vicenza, between Venice and Milan, contains, in proportion to its size, many times more beautiful buildings than any other town in the world, and these it owes entirely to Palladio,—either actually designed and built by him, or at least by his followers or imitators.

In this country, at the same period, the great style was the Elizabethan, or “King James’s Gothic,” which, however, seems to have declined in the reign of the first James, and to have gradually given way to the Palladian or Seicento. Some of Palladio’s imitations, indeed, surpassed him in individual examples, in this country especially,—as, for instance, did Inigo Jones, Sir Christopher Wren, and Sir John Vanbrugh, who, in Whitehall, St. Paul’s Cathedral, and Blenheim, all far surpassed their Italian model. Inigo Jones, after his second visit to Italy (1613-14), designed in no other style than Palladio’s, though previously he had worked chiefly in the Elizabethan. The style of Palladio has been the prevailing taste in Europe for at least 200 years. From Inigo Jones to Sir John Soane, there was nothing else done in this country. Even Gothic repairs were carried on in this style, as in the west front of old St. Paul’s by Jones, and in the towers of Westminster Abbey, and St. Mary’s, Warwick, by Sir C. Wren. The pilaster-niche-and-urn-style was the most characteristic designation the lecturer could give it. It was impossible for him, however, to go into general details of the numerous works of this long period.

Of Sir C. Wren’s works, he continued, I need say nothing, but simply refer to St. Paul’s, perhaps the finest example of its style in the world. Wren never visited Italy, but he studied Palladio, and was doubtless greatly influenced by the works of Inigo Jones. The same may be said of Sir John Vanbrugh, the architect of Blenheim and of Castle Howard, and the third of the great triumvirs of this country in the seventeenth and eighteenth centuries. Of the three, Sir John Vanbrugh was perhaps the most picturesque or ornamental designer. Sir Joshua Reynolds says of him, that he composed like a painter,—that he perfectly understood, in his art, what is the most difficult in painting, the conduct of the back-ground, the secondary features, or accessories.

Of the more exclusive ornamentists, the most celebrated of all this period was Grinling Gibbons, by birth and descent (like Sir John Vanbrugh) a Dutchman, but naturalised in this country, the chief arena of his labours. He arrived here in the year after the Great Fire, at the age of nineteen only, and he appears to have been much employed by Wren in the execution of ornamental details. In carved decorations in wood, Grinling Gibbons is scarcely yet rivalled.



So far we have nothing peculiar in the ornament of this period, the whole being of a classical character; but in the middle of the seventeenth century a peculiar modification of the style arose, and became so general and popular by the close of the reign of Louis XIV. that it is now known almost exclusively by his name. This style, like almost every other, arose in Italy, and we may perhaps look upon the Chiesa del Gesu, or Jesus Church, at Rome, as its type or model. It evidently belongs, however, to no individual in particular, but was a gradual development from the ordinary style of the Renaissance. If we must father it, Pietro da Cortona has probably the best claim. It bears the same relation to the Renaissance that the Elizabethan does.

In the time of Louis XIV. gilt stucco work altogether superseded decorative painting, and the absence of colour in the principal decorations of this period seems to have led to the development of their most peculiar characteristic, an infinite play of light and shade. This is the great feature of the Louis Quatorze and all its modifications. Exact symmetry, regularity, and uniformity were no longer the great essentials of a design, and we accordingly find, in the Louis Quatorze, symmetry for the first time occasionally systematically avoided. This, however, was only a gradual discovery; for there is very little of this bizarre style in the earlier works of Versailles, the great repository of the ornamental art of this period: it chiefly characterises the Louis XV. or Rococo,\* though that and the preceding are generally spoken of as one style.

The palace of Versailles was itself built in a few years; but the interior decorations were in progress for a long series of years. The bed alone of Louis XIV. occupied Simon Delobel twelve years, and the whole arrangements were not completed in a fit state for the king to take up his residence at Versailles until (1681) nearly twenty years after the commencement of the building. The works are still going on, and the present Versailles is the accumulated labour of two centuries.

Into the details on which the lecturer then enlarged, exemplifying them occasionally by decorative illustrations, we cannot here enter.

We must pass over a century, he continued, in proceeding to the third subject of this lecture; for during that century nothing new arose in Ornamental Art.

If Europe can, at the present moment, very generally congratulate itself on the substantial revival of the Arts, this is certainly very greatly owing to the example of a single individual—Ludwig the First, of Bavaria, who has done more for the permanent benefit of taste during the last quarter of a century, in the small city of Munich alone, than was ever before accomplished, by whole generations of kings, either in ancient or modern times. All the munificence of Pericles and of Lorenzo the Magnificent combined, would not reach one tithe of the patronage of Ludwig the First, of Bavaria. His works in every department of art are truly surprising, and all accomplished in half the time spent by Louis XIV. over the gorgeous accumulations of his one palace at Versailles. During the quarter of a century that he was active, the king of Bavaria raised on an average at least one great public monument every year, and occupied constantly about 200 artists in their decoration,—in sculpture, stucco, scagliola, mosaic, marquetry, fresco, and encaustic. Half these artists have earned an independent European reputation, and some a lasting one, as the architects Gaertner, Klenze, Ziehlend, and Ohlmüller,—the sculptors Schwanthaler and Stiglmeier,—and the painters Cornelius, Schnorr, Hess, and Kaulbach,—and many others are little less distinguished.

To enumerate the principal buildings: there is the Au Church (Gothic) by Ohlmüller, with its magnificent stained-glass windows; the Industrial Exhibition Building (Greek) by Ziehlend, and, by the same architect, the Byzantine Basilica of St. Boniface, with its vast series of frescoes by Hess, Kock, and Schrandolph; the Library, the University, the Ludwig's Church, and several other buildings, by Gaertner, all in the Byzantine style, and decorated with unparalleled taste and simplicity; and,

lastly, the numerous buildings of Klenze,—the All Saints' Chapel (Byzantine), covered in the interior with frescoes by Hess, on a gold ground; the Glyptothek, or sculpture gallery, (Greek); the Pinacothek, or picture gallery, (Italian), both buildings richly decorated with frescoes by Cornelius, Zimmermann, and others; the Königshaus and the Saalbau, or the king's building and the state-building, two new immense wings to the palace, both Italian.

"I once stood alone," said the lecturer, "in the magnificent throne-room of the state-buildings, and could not help exclaiming to myself, 'Do I see one only of a hundred magnificent saloons, in one only of the palaces, of the king of less than five millions of subjects!' I then thought of Buckingham-house, and that lumbering piece of Gothic in St. James's; but we are improving; still there is something humiliating in such comparisons, when we reflect that it is not money, but taste, which effects these master-achievements of art."

But, to continue Klenze's buildings;—then we have the Post; the Ministerial Buildings of the Ludwig's-street; the Odeon, or concert-room; the Ruhmeshalle, or temple of fame; and the marvellous Walhalla, on the Danube, a modern Parthenon, an Elysium devoted to the marble images of the great men of the German race.

To describe all these great works would require a volume, and those mentioned are only a portion, as said, of the surprising achievements of Ludwig I. of Bavaria, immeasurably the greatest patron of art known in the world's history. What particularly concerns us in these works is the ornamental decoration, but we must specially note one other monument—the colossal bronze statue of Bavaria, by Schwanthaler. This is the largest bronze statue ever cast: it is nearly 60 feet high without its pedestal,—about 20 feet more, or 80 feet in all: it was destined to be placed before the Ruhmeshalle this year, but the King's abdication will probably delay the event.

As to the decorations, Klenze has a decided bias for Greek ornament; Gaertner for Byzantine,—with more variety and beauty, therefore. The lecturer then proceeded to exhibit to the students a series of examples of the Munich decorations.

Such, he concluded, is a slight notice of the wonders of Munich, all accomplished by one man in a quarter of a century; and besides these, all material interests have found equal care,—especially roads and canals,—the first German railway was opened in this kingdom,—and the same king originated the German Zollverein, or Customs Union. If ever a man merited the title of great it is Ludwig I. of Bavaria.

It has been said by some that this vast outlay in art was, in fact, unbounded extravagance; but the King of Bavaria could see much farther than such people. Twenty years ago a stranger was a rarity in Munich: few people had ever heard his name: even in 1834 there was very little, and bad, hotel accommodation there, because there was little demand for it. Now it swarms with strangers, pouring their hundreds of pounds daily into the coffers of the Munich tradesmen, who are already reaping the golden harvest which their late enlightened king has sown for them; and Munich now rivals Paris or Rome.

#### ST. BARTHOLOMEW OF THE EXCHANGE, LONDON.

THE Western Gallery of the new Church of St. Bartholomew of the Exchange, re-erected under the direction of Professor Cockerell, in Moor-lane, Fore-street, presents a new and agreeable architectural feature, and obviates a perspective defect, evident in most of the City churches in this style, on entering the church from the western door.

The front pew in the centre is omitted; the second and third pew, raised upon an arch, are thrown into one, forming a choir gallery in front of the organ; the sacrifice of actual space is therefore small, but the scenic advantage is considerable, for, on entering the western door of the church, the whole interior to the east end is discovered through this triumphal arch, forming in itself a frame to the picture, and thus obviating that perspective error which commonly obstructs this view, and mars the

architectural effect, by the continuation of the beam of the western gallery.

From the church itself this arch, surmounted by the organ and the choir gallery, forms a highly architectural feature: underneath the soffit of the arch the font is placed, appropriately, as respects its canonical position. The old fittings, organ, font, &c. of the original church have been re-employed to the best advantage; but in a new structure we foresee a variety of applications of this hint, which our readers will not fail to appreciate.

The funds for the rebuilding of this church, on its removal from Bartholomew-lane, were, it appears, very limited, and were quite inadequate to its rebuilding with appropriate magnificence; the restoration, therefore, of the original design of this ancient civic monument, in all its details, as nearly as might be, was determined on.

The Tuscan, in all its severity, has been happily applied to the structure, relieved, however, in the fittings, by a richly carved oak altar-piece, pulpit, &c. The Communion end is lighted by a Catherine-wheel window, consisting of a trione, surrounded by rays of painted glass (the gift of the architect), the purpose of which appears to have been rather to communicate a warm glow to the surrounding architecture, than as offering any pretensions as a painted window.

#### DEGRADED STATE OF ARCHITECTURE IN IRELAND.

WITH reference to an article in your publication, entitled, "Degraded State of Architecture in Ireland," although I am quite willing to acknowledge the justice, and admire the candour, of some of the "Cell's" observations, yet I confess that I differ widely with him in other points. He criticizes with no small share of unkindness, the "Institute of Irish Architects," but, at the same time, he skillfully takes care not to expatiate upon the difficulties under which they are labouring. He does not consider the inability of this body to effect anything which can be of very material benefit to the profession; and, although he describes in a graphic manner the impoverished state of the country, yet he does not allow that the consequences produced by it are sufficient to exculpate the Institute from the stigma of tepidity. What means are there for working a reformation, when both power and finances are deficient? I contend that, struggling with difficulties, the Institute has performed its duty to the profession as creditably as any in existence. We have, besides, in Dublin, the Royal Irish Academy, the Royal Dublin Society, the Royal Hibernian Academy, &c., the two former of which have contributed as much to the advancement and cultivation of the arts and sciences as any public body in the United Kingdom, while the latter has introduced into the world many a youthful artist, and still continues to lend its aid to the student, notwithstanding the crippled state of its finances.

Although I cannot but agree with the "Cell" to the extent, that the system of monopolizing public business by a limited number of (too often) tasteless individuals, is extensively carried out, yet I cannot entirely coincide with him, that our national architecture is in so degraded a position as he asserts. In the principal cities through Ireland are to be found some buildings which may be considered "gems" in architecture; and if we take, for example, Dublin, I am confident that I am right when I say, that for its size and extent it is unsurpassed in point of architectural beauty by any in Europe. And it is with considerable gratification that I witness (notwithstanding the depressed state of the times) that there are many fine artistic specimens rising around me, which betoken well the growing appreciation of our noble art. It is a strange fact, that within the last two years there has been a great impetus given to the building trade in Ireland, for many extensive public buildings have been, and are being at present, erected through the country, namely, colleges, chapels, lunatic asylums, prisons, poor-houses, railway stations, &c.; and although, owing to the misfortune of absenteeism, the private business has been considerably injured, yet, taking everything into consideration, I contend that architecture has not received such a shock as asserted. It is also strange that, notwithstanding the bank-

\* The lecturer afterwards remarked that we may perhaps define Rococo as bad Louis Quinze.



ruptcy of the traders and shopkeepers, we see every day large establishments springing into existence, some of which bid fairly to rival (if not to surpass) many in the three kingdoms; and into whatever street of business we turn, we hear the sound of the hammer and the trowel, engaged in the erection of some new house of business, or in the decoration of some fancy shop front.

The thorns in the path of the junior members of the profession are many, and the advantages equally few; but still I think that where the youthful student embraces his profession with enthusiasm, he may, in a great measure, smooth the way by his own exertions.

I cannot here refrain from dwelling upon the apathy which is manifest in the paucity of the contributors to our fine-art exhibitions, and, though favourable opportunities are afforded by them for the advancement of talent, yet few are found to take advantage of them: while we are wanting in a desire to forward ourselves, we cannot reasonably expect foreign assistance.

J. J. L.

#### NEW CHURCH, GREAT EALING, MIDDLESEX.

THE foundation-stone of a new church, about to be erected in this parish, was laid on Thursday, the 11th inst. Much interest was created on this occasion from the circumstances of Christian liberality under which the good work has been commenced. The necessity for additional church accommodation had long been inconveniently felt, especially by the poor, and some months since a subscription was commenced for building a new church. The appeal was liberally responded to by the proprietors and inhabitants, and about 1,600*l.* had been raised, when a lady, ended with pious zeal, came forward and munificently undertook to erect the church at her own sole expense.

Miss Lewis, the foundress, laid the first stone in the presence of the Vicar of Ealing, some of the neighbouring clergy, and a large number of the inhabitants, as well as of her personal friends. The vicar, the Rev. Mr. Smith, performed the usual service, and at the conclusion of it presented Miss Lewis with a silver trowel, accompanying the presentation by an appropriate address, which concluded with a resolution passed unanimously at a meeting of the subscribers to the fund above-mentioned, expressing their grateful sense of the piety and liberality which had suggested the noble undertaking.

The church is proposed to be a handsome building in the Decorated style worthy the present age of revived ecclesiastical architecture. The designs have been prepared by Mr. G. G. Scott. The church is to accommodate 800 persons, and will cost in the whole about 7,000*l.* We understand that Miss Lewis is the only sister of the gentleman who died last autumn, and by his will bequeathed a portrait and a reversionary legacy of 10,000*l.* to the National Gallery.

#### MONUMENTS TO SIR ROBERT PEEL.

THE Commons have voted an address to her Majesty praying her to direct that a monument be erected to Sir Robert Peel in Westminster Abbey, at their expense. A numerous and influential meeting of merchants, bankers, traders, and other inhabitants of London was held in the Egyptian-hall, Mansion-house, on Monday last, when it was resolved to promote a subscription to raise a national testimonial as a tribute of respect to the memory of Sir Robert. The Lord Mayor was in the chair. A committee was appointed, but without any restriction in the meantime as to the nature of the proposed tribute. A statue in Guildhall, however, a "Peel's wing" to the London Hospital, &c., were suggested. A subscription was forthwith opened, with sums ranging from "a poor man's 5*s.*," to the Merchant Tailors' Company's two hundred guineas—"one day's pay" from the City "Peelers"—the police—500 to 600 in number, inclusive. The general metropolitan police and those of the country districts were to follow the example.—The subscription for the working man's monument also progresses. A meeting was held last week at Pentonville in support of it, when it was resolved that the subscription list be

open till 1st January, 1851, and that all sums be received, from 1*d.* upwards. Lord John Russell and other influential members of Parliament have given their countenance to this project, and offered their assistance and co-operation.—At Bury, the birth-place of the lamented statesman, 700 guineas were subscribed in ten minutes for a local monument—the amount subsequently running up to 2,000*l.*, including 200*l.* from the working classes, with fifty 3*d.* bits from one working man.—The subscription for the Manchester monument had risen to 3,000*l.*, and upwards on Friday in last week.—At Salford it is proposed to erect an obelisk in Peel's Park, opposite the late Sir Robert's Salford residence. Nearly 300*l.* were forthwith subscribed.—A memorial is to be erected at Ashton-under-Lyne, and there and in other manufacturing centres large amounts have been promptly subscribed.—At Birmingham a public meeting was to be held on Tuesday last to consider the propriety of erecting a monument there.—The like movement is taking place at Leeds.—A statue on the esplanade at Portsmouth is spoken of.—In short, architectural designers, sculptors, and other professional men had better be sharpening their tools to begin, for if even two-thirds of the projects already started come to maturity, there will be work to do for not a few.

#### NOTES IN THE PROVINCES.

A REVOLVING bridge is in course of construction across the river at Suttonbridge, Wisbech.—Mr. C. T. Brown, of Southampton, architect, according to the *Hampshire Independent*, has prepared a design for a public fountain at Winchester, to be placed in the open space opposite St. John's Hospital.—A Martello Tower is about to be built by the Ordnance on the Stack Rock, in Milford Haven, from a design prepared at the Royal Engineers' Office, Pembroke Dock.—New schools for 600 children, with residences for a master and mistress, are about to be built at Hereford, on a plan furnished by Mr. T. Nicholson, of Hereford, architect.—The provision of public parks and places of recreation, says the *Morning Chronicle*, has been considered as a matter of duty by the authorities of Liverpool. Mr. Richard Vaughan Yates, a Liverpool merchant, purchased a park of about 80 acres for the free use of the public, and which he has drained and laid out. The corporation followed Mr. Yates in this important movement, by purchasing and throwing open to the public the Botanic Gardens. They have likewise purchased, for upwards of 80,000*l.*, the extensive estate of Newsham-house, on the confines of the borough, which they are about to convert into public pleasure-grounds.—The Plunge Bath at Warrington is now completed, with a separate dressing-room for annual subscribers.—A movement is on foot in Manchester to erect a hall for music, to equal, if not surpass, the Liverpool St. George's and Philharmonic Halls.—The Miles Platting Baths and Wash-houses, erected at the expense of Sir B. Haywood, comprise a frontage of 160 feet, with a depth of 49 feet. The baths, twenty-three in number, and divided into three classes, are lined with slate. The want of a plunge-bath, at the Miller-street establishment, is here supplied by a bath about 9 yards by 6 yards, and from 3 feet 6 inches to 4 feet 6 inches in depth, containing 10,000 gallons of water. The supply is obtained from the Water-works Company. There are four wash-houses, each affording accommodation for twelve washers, with means for obtaining hot and cold water. The steam from the tubs is collected and carried away. The drying-room is furnished with sixteen maidens or horses, each 3 feet 6 inches long and 7 feet high; and by the introduction of an effective upper current of air, it is expected that the clothes will be dried with great rapidity. The vapour of drying is also conveyed outside. In the cellar are several wash-tubs, for the purpose of cleansing infected clothes. The water for the whole is heated by steam from an eight-horse power boiler in the yard. The hot water tank contains about 2,000 gallons, and that for cold water about 5,000. The establishment is lighted throughout with gas, and has been erected under the superintendence of Mr.

Winstanley. The plan, generally, says the *Manchester Spectator*, is a modification of that adopted in the Paul-street baths, Liverpool. Mr. Stone's ventilating arrangements have been employed. The cost of erection and fitting up is about 2,000*l.*—It is intended to erect a new exchange at Blackburn.—On Wednesday week, a new Independent chapel was opened at the village of Farnworth. It is built of stone, in the Gothic style, and accommodates about 1,200 persons. The walls inside appear as marble!—On Thursday, in last week, the foundation-stone of a new church, to be named St. Matthew's, was laid in the district of Little London, Leeds, on a site near the district church school, recently erected. The building is to be of stone, in the middle-pointed style, from a design by Mr. Burleigh, of Albion-street, Leeds: it is estimated to cost 2,800*l.*, of which 400*l.* are still required. There will be accommodation for 700. The church is to be finished by August 1851. The builder is Mr. Charles Jackman. The cost is to be 2,800*l.* The following dimensions and particulars are given by the *Ecclesiologist*:—Nave, with five bays, 71 feet by 22 feet; aisles, 12 feet 9 inches broad; tower and spire engaged at west end of south aisle, chancel, 36 feet by 19 feet, with south aisle of single bay, and sacristy. The ogee line has been studied in foliation of tracery throughout. The east window is to be of five, and the west of four lights; those in the aisles of two, varied in the heads, as also those north and south of sanctuary, but with more elaborate heads. The pillars are octagonal. The clerestory of the nave is of circles, alternately filled with trefoil and quatrefoil. All the roofs will be open and of simple construction; that of the nave composed of braces, collar, queenpost, and struts; that of the chancel of intersecting braces. The tower forms the porch, there being no vest door. There are single-light windows to the ringers' story, to the west and south. The belfry story is lighted with two single-light windows, with traceried heads. The spire is of stone, and broached, with two light spiral lights between the haunches.—A new wing is about to be added to the Durham County Gaol.—A subscription has been commenced at Edinburgh for another statue of the Queen, to be executed by Mr. Handside Ritchie, and placed in the centre of the quadrangle of Holyrood Palace. The town-council gave its sanction by assisting the subscription.

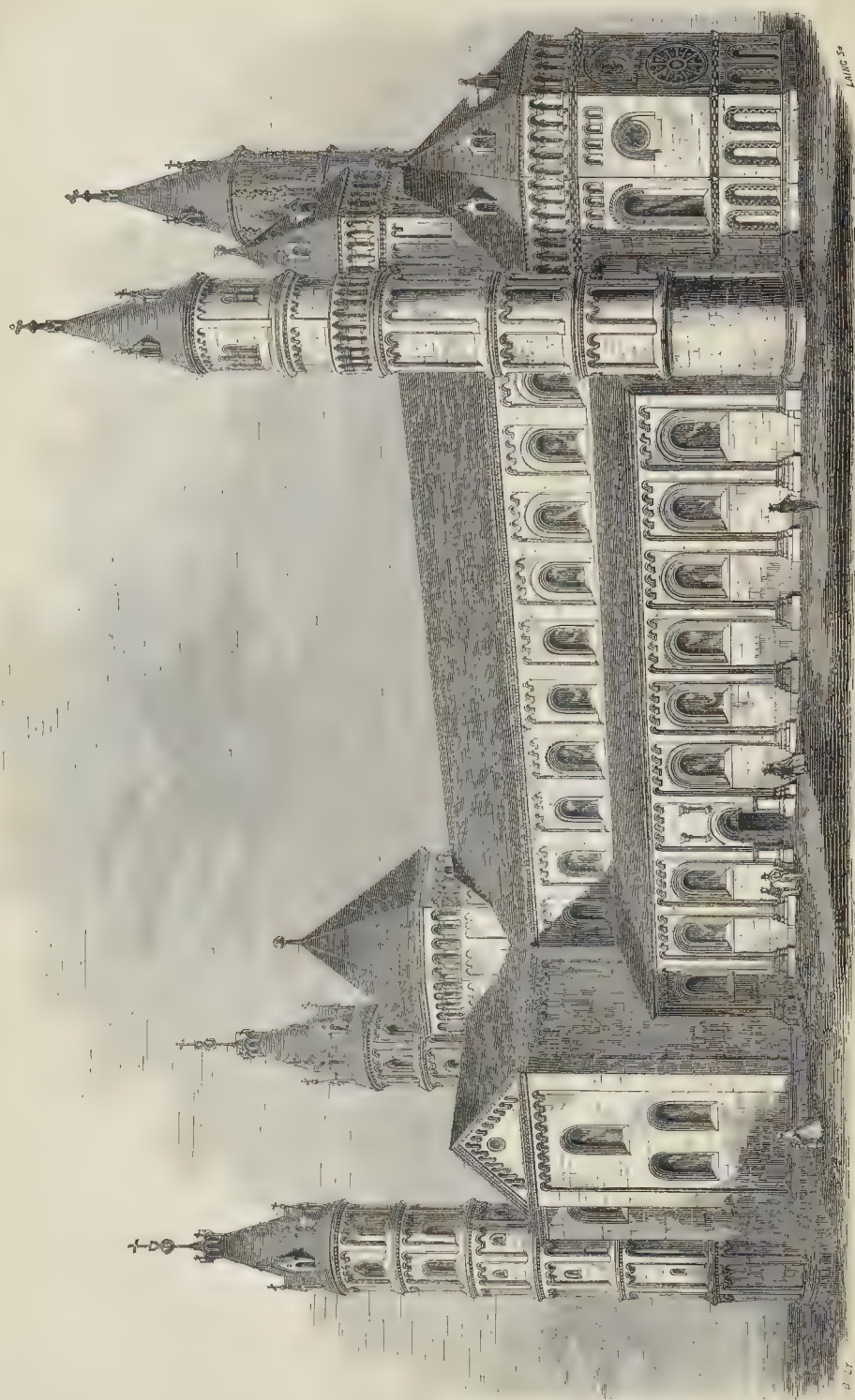
#### PAINTINGS—EXETER CATHEDRAL.

AN interesting discovery of wall paintings has just been made in scraping the walls of the Chapter House of Exeter Cathedral. Beneath the windows this edifice dates about 1230, and the wall is recessed into deep early English coupled niches, with bold detail, in clustered shafts, caps, and arch mouldings. The back of each of these recesses is found to have had a figure about six feet high, standing under a trefoil-headed crocketed canopy, on alternately a red and black ground. The spandrel spaces of the arches are filled with foliage, shaded with black. All the probable saints are so defaced that not a feature can be traced, and the same treatment has been bestowed on two tall compositions adjacent to the East window, each having two niches in the height, relieved with a black ground, elegantly diapered with orange stars; with stars on a red border, forming the parallelogram outline, coved into a corbel form below. The painting is apparently in oil, and of the third pointed period, somewhat in correspondence with the gorgeously painted and gilt roof added by Bishop Lacy in the fifteenth century to the perpendicular superstructure erected by him. The name of David has shown itself on the base of a series of unoccupied niches (now restored), which probably once contained other prophets, priests, and kings of Holy Writ.

E. ASHWORTH.

QUEEN'S COLLEGE, CORK.—Mr. R. L. Stopford, of Cork, has just published a very nice view of the new college erected by Sir Thos. Deane, which we illustrated some time ago. Mr. Stopford's view shows the front next the water, where, on a steep bank and amongst trees and underwood, the effect is very good.

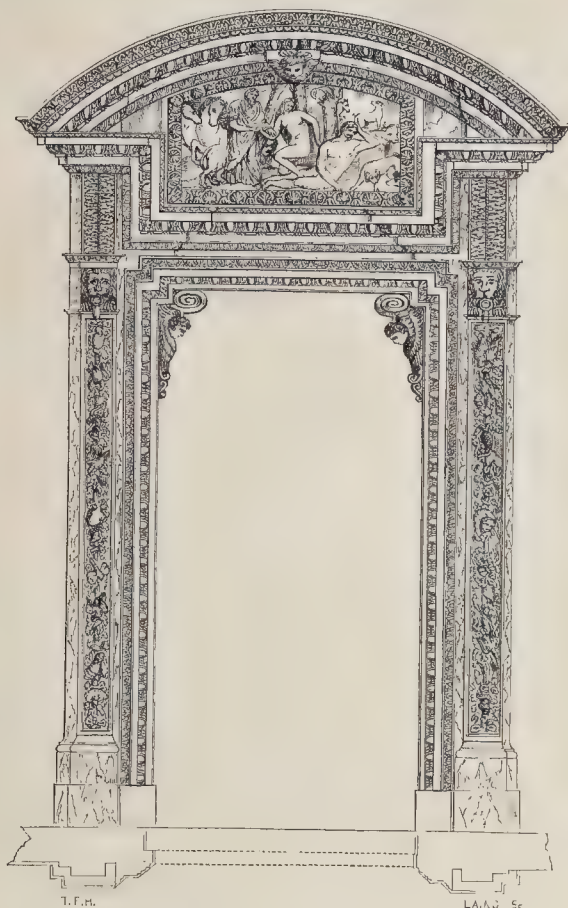




WORMS CATHEDRAL.



CARVED DOORWAY, MILAN.



## WORMS CATHEDRAL.

ANNEXED we give a view of one of the most interesting Romanesque buildings in Germany, the Cathedral of Worms. It was begun in 996, and consecrated in 1016, and is built of the same red stone with that of Spire. It has two round towers and an octagonal cupola at each end. The absis at east end is multangular. The west front is flat. At both ends are ornamental galleries, of which the small pillars have rich capitals, and rest on bases formed of grotesque monsters: similar galleries belt the round towers.

Hope says—"Over the south entrance projects a canopy whose columns, carved on brackets, are bent in the middle. The north entrance and neighbouring chapter-house present some very beautiful florid Gothic. On the pediment over the porch, under a rich canopy in high relief, is seen a figure of a queen riding on a chimera, with the heads of an eagle, a lion, and a man. The stone spires are decorated by windows, with whimsical perforated balls. The inside presents high, narrow, round-headed arches."

There is no entrance at the west end, but only at the side, and while one choir and altar and absis is at the east, there is another choir and altar and absis at the west end.

## DOORWAY, MILAN.

THE richly carved doorway represented above is in Milan, and has probably been noticed by such of our readers as have visited this interesting city.

## THE HEMLOCK STONE—NOTTINGHAM.

In descending the hill from Risby toll-gate towards Sandyam, on the road from Derby to Nottingham, is seen a high ridge of land covered with firs, their open foliage cutting the horizon, and in the centre, apparently a barren knoll, bearing on its summit a singularly-shaped rock, known in the neighbourhood by the name of the "Hemlock Stone," perhaps originally called the "Cromlech."

This fragment of rock lies at a distance of nearly three miles from the point where it is first observed, and may be visited by turning through the toll-gate at Whanscote House, and proceeding half-a-mile along the road, when it bursts suddenly in sight on a hill to the right, at a few hundred yards distance. Its appearance from this point is imposing, not unlike the "Cheesewring," of Cornwall—the top projecting over the sides and ends considerably, and its summit sloping gently towards the east, the stone itself entirely void of verdure except having on the top a small straggling sloe-bush, and on the side a few small tufts of polypodium, not much enriched with weather tints, but, from its enormous mass projecting against a well-wooded distance, and contrasting with the flowers of the furze-bushes in the foreground, its effect is very striking.

At some period it would appear from its position to have been a druidical altar, as it stands on the sloping side of a hill, commanding an extensive view of a plain, on which thousands might assemble, and overlooked by two other hills of rather greater altitude, probably at that time covered with a wood, and

likewise within a short distance of a druidical residence in Nottingham-park. As there was not a place of sacrifice nearer than at the Peake Hills, in the neighbouring county of Derby, such a place would of necessity be wanting; it would, therefore, be natural to come to such a conclusion, that it had been used for such purposes.

Few of our topographers have made many observations upon this stone, from the circumstance, probably, of its being at some distance from the road, and not being in sight, only at particular points. If such a monument of antiquity had stood on one of the hills in Wales, Cornwall, or Devonshire, it would long ago have attracted the attention of our travelling antiquaries.

G. J. R.

## DURABILITY OF TERRA COTTA.

As we all feel interested in any material that may hand down to posterity the works of art and talent of the architectural profession of the present day, I would say a few words on the subject of *Terra Cotta* recently brought under notice of your readers; and seeing that reference is made to the bas-relief in the pediment of the western portico of Greenwich Hospital, I am induced to give a few words descriptive of it. The composition consists of about sixteen or seventeen figures, some of them from six to nine feet high, occupying a space in the pediment of nearly fifty feet in length: at the extremity of the pediment, on the right hand of Britannia, appear the wrecks and sinking of ships of



war, representing the terrible close of the battle of Trafalgar, and the effects of British cannon, mortars, balls, &c., which, with an anchor, cable, and ships' trophies, terminate the other extremity of the pediment. Had this work been executed in marble it would have required ten years in labour, and as many thousand pounds to purchase the marble; whereas, in the present instance, the expense was moderate, and the time did not amount to two years. In addition to the few examples referred to in Mr. Fowler's paper, such as the screen in St. George's Chapel, Windsor, there are also various statues in the chapel, as well as arms on the barracks; also at York, Northampton, Exeter, &c., and on the late guard-house of old Buckingham Palace, long since removed, and the barracks throughout Scotland, various works in Dublin and other parts of Ireland, arms to many of the public halls in London, at the Pelican, Albion, and British Fire Offices, the statue of Geo. IV., sixteen feet high, on Lincoln Heath, also of General Lord Hill at Shrewsbury, the numerous figures ornamenting the grounds of *Allon Towers*, the naval column to Nelson at Montreal, in Canada, &c., &c., as well as in America, Petersburg, Poland, and the West India Islands, and other places abroad, with the more modern examples at home, such as the figures surmounting the centre pediment of Buckingham Palace, and those lately removed from the wings (making way for the new façade), also the Corinthian capitals and the rich sculptured frieze surrounding the building, the military trophies, &c., &c., with an endless variety of arms, fountains, &c., &c. None of these have shown any symptoms of decay, even in the extreme points of the foliage; and undoubtedly, if under the control of proper management, with a thorough knowledge of its component parts (such as were used at Coade's works), and attention to a proper consistence of drying before burning, the material is worthy of much more attention from our architects than has hitherto (of late years) fallen to its lot. T. H.

#### THE COMPETITORS FOR DRAINING LONDON.

A MEETING of some of the competitors invited by the late Commissioners of Sewers to send in designs for the drainage of London, and their friends, was held at Morley's Hotel, Westminster, on Monday, the 15th inst., when we understand it was resolved,—

"That a communication be made to the Commissioners of Sewers expressing the sentiments of this meeting, that to withhold all prize, reward, or employment from those whose designs were considered worthy of honourable and distinctive mention, is a departure from the promises held out to the competitors, and from the accepted terms upon which all professional competition has hitherto been encouraged, and it is hoped that it will not now be deemed too late to perform an act of simple justice by which merit will be rewarded and future competition stimulated." We cordially echo the spirit of the resolution.

#### FORM OF HOUSE-ROOFS.

I HAVE been a housekeeper nearly thirty years, during which time I have lived in many mansions, and had the misfortune to build one on my own account. I have no great cause to complain of *smoky chimneys*, but I have one which always smokes in a particular wind, and my architect having made it very lofty and rising from a ridge, I often speculate upon the means of cure, but do not venture to attempt any, having the fear of scaffold poles and broken slates before my eyes—for getting to it by a ladder is out of the question.

Although I have built a house, I have but a rude idea of construction, and cannot understand why the roof should, as a matter of course, consist of ridge and valley, impracticable, or nearly so, to the foot of any one but a slater; and when, in these sanitary times, I reflect that four things are very desirable in a house, viz. freedom from smoke, proper ventilation, all rain-water to pass through the house, using what is wanted and flushing the drains with the remainder, and the means of readily and effectually sweeping the chimneys,

I cannot see why all roofs of dwelling-houses, and particularly in streets where ornamental gables and other roof ornaments are out of the question, should not be perfectly flat; and now that we have various materials to choose from, all difficulty to my mind is removed, and if ever I build again I will have a flat roof.

I have mentioned my ungettable smoky chimney, and I have besides been put to a great expense in first carrying all the rain-water off the roof, and secondly, in bringing it back again; for, as my architect made me pay for his fancy of an Italian villa (and a precious blunder it is, every one abusing it), my eyes hang over about a yard all round, so that I have had to pay for some 200 or 300 feet of gutters and spouting, always choking with sparrows' nests, &c., and as I want the rain-water for the bath and closets, I have had to lead it all back again by all sorts of *circumbendibi*, as Dr. Dilworth would say.

#### PATER FAMILIAS.

#### PAYMENT OF SURVEYORS, &c., BY LOCAL HEALTH-BOARDS.

##### BURNHAM.

PERMIT me once more to direct the attention of your readers, especially those who are rate-payers in provincial towns, to the mode in which the "Public Health Act, 1848," is about to be carried out by some of the local boards.

The Burnham Local Board, to wit, offer, by advertisement in your paper and elsewhere, the magnificent premium of 20l. for the best plan, estimate, and specification, for draining the town of Burnham, and for supplying it with good water; and even this burst of liberal feeling towards a highly respectable and scientific profession is not unchequered, since the board reserves to itself the right of rejecting all the plans sent in, and the money will not be paid until after the approval of the local board: the plan shall be sanctioned by the "General Board of Health."

Now, Sir, I apprehend it is not requisite to possess professional knowledge to discover that, in order to do properly, or even inefficiently, what is required to be done at Burnham, an engineer or surveyor must incur considerable expense; he must make sufficient research in the neighbourhood to become acquainted with the sources of water supply; he must possess himself with a tolerably accurate map of the district before he can pretend to estimate, even approximately, the probable cost of his scheme; and, as a *sine quâ non*, he must procure a correct section of the levels of the district before he can step an inch in the path of his undertaking.

All these conditions being obvious, I would ask you, Sir, is it likely a gentleman competent to their fulfilment will go to Burnham, or even give to the business the requisite time in his office, with the mere chance that if an incompetent tribunal (I say it respectfully, it is not to be supposed that a committee of private gentlemen and tradesmen can determine upon the best plan of carrying out a work of this kind) shall pronounce his plan the best, and only then, he is to be repaid a portion of his costs out of pocket. I think, Sir, we may safely assume such a gentleman will not respond to the advertisements of the Burnham Local Board, but that he will rather do as I am free to confess I am doing,—sit in his office, waiting for the good time that's coming, than to assist, by any act of his, in propagating a state of things only equalled by the position of a journeyman clergyman in the time of Charles the Second.

Having said thus much on the results to the members of my profession, let us consider a few of the consequences likely to result to the ratepayers of Burnham from the manner in which their representatives at the Local Board of Health have, in their collective wisdom, thought proper to deal with this business.

First, I am not at all prepared to say, being totally unacquainted with Burnham, that if this work had been let by tender, the first cost would have much exceeded the 20l. now offered. Many clever men will often work assiduously for a small certainty, who would turn with contempt and disgust from a lottery such as the one contemplated; so that the first outlay might not have been increased, and the Board might have satisfied itself of the competency of the applicant before he had been asked to expend one penny in the service, beyond the postage of, and paper upon which he wrote, his tender. Secondly, as to more important results, let us suppose that the best plan produced by this competition contemplates the laying down of 12-inch water-pipes where 10 would be sufficient, 10 where 8 would answer, 8 where 6, and 6 where 4 would do: without pursuing the subject further and calculating on the present London price of iron pipes, five guineas per ton, it is easy to discover the result.

I have now before me a plan and estimate I have

recently most carefully prepared for the drainage and water supply of a provincial town,—I should imagine a parallel case with the one upon which we are now discussing:—

My 10-inch pipe will cost, including laying, about ..... £490 0 0  
Where this 12-inch, it would cost..... 656 0 0

£166 0 0

The 8-inch will cost about ..... £1,261 0 0  
The 10-inch would be ..... 1,625 0 0

£364 0 0

The 6-inch will cost about ..... £325 0 0  
The 8-inch would be ..... 485 0 0

£160 0 0

The 4-inch will cost about ..... £830 0 0  
The 6-inch would be ..... 1,300 0 0

£470 0 0

So that in this town an erroneous theory would involve an additional outlay in the first case of ..... £166 0 0  
In the second ..... 364 0 0  
In the third ..... 160 0 0  
In the fourth ..... 470 0 0

£1,160 0 0

in the pipes for water supply alone, to say nothing about the drainage, in which the relative cost of pipes of 9 inches and 18 inches bore are about as 1 to 4. EDWARD RYDE.

#### Books.

*A Letter to Lord John Russell, on the Future Location of the National Gallery and Royal Academy.* London: Parker, 1850.

THE object of this letter by Mr. John Doyle, which is both fairly and clearly written, is to urge the removal of the National Gallery, from its present location, to a more eligible site, leaving the present building wholly to the uses of the Royal Academy and its exhibitions and lectures. After pointing out various reasons why the national pictures should not be longer allowed to remain where they are, on the one hand, and on the other, why the present galleries should be retained for the annual exhibition of modern pictures, and the schools and lectures of the Academy, Mr. Doyle proceeds to review some of these former reasons briefly, as follows, at the same time pointing out what he conceives to be a proper site for the national pictures:—

"Now comes the important inquiry,—What ought to be the site of the new and permanent National Gallery? I have endeavoured to show that the vicinity of a great thoroughfare in the heart of the metropolis is not appropriate—that for the due preservation of the pictures, the interest and extension of the institution itself, and the better diffusion of its beneficial influences, it is expedient that it should be removed at least a short distance from the noise, turmoil, dust, and smoke inseparable from such a locality, and placed in circumstances as far as possible harmonizing with its high purposes. If, my lord, I apprehend rightly, no situation will be found to meet, in all respects, those requirements so well as Kensington Gardens, and more particularly the site on which the palace stands. This latter, when it comes to be examined, will be found not only free from every objection which attaches to Trafalgar-square, but to possess all the recommendations which the most scrupulous judgment could exact. Placed near the town's western extremity—between its two principal thoroughfares, which here approximate so as almost to embrace it, and from which it is just sufficiently separated to protect it from those annoyances attendant upon a too close approximation to a great highway—accessible with all desirable facility by the public conveyances, now brought within the means of the humblest—approached through the parks and its own grounds by the most beautiful walks—a spot visited by all for its own sake, and to which we would with most pride and pleasure conduct the footsteps of a stranger,—whether looked at with reference to architectural purposes, its agreeable associations, its pure atmosphere, or its general convenience, it will, if I mistake not, be found unexceptionable. With reference to architectural purposes there can scarcely be imagined a nobler site for a public building. The praise bestowed by the committee upon Trafalgar-square is, as it appears to me, far more justly due to this part of Kensington Gardens; for there no incongruities, no deformed masses of brick and mortar mar the architect's efforts and offend the critic's eye—while Nature herself, under the skilful guidance of the



landscape-gardener, contributes to its beauty by presenting to the spectator distant views of its fine position, through long vistas of stately trees. The air of tranquillity which reigns around the spot itself, embraced as it is within the circle of the most populous capital in Europe, is almost marvellous, and would add a great and appropriate charm to a place dedicated, like a National Gallery, to the contemplation and study of fine art.

Some may be disposed at the first glance to regard Kensington Gardens as too distant for public convenience. On further examination I feel assured, my Lord, that this distance, so far from amounting to an objection, will appear to be a positive recommendation. For whose benefit is a National Gallery intended? Is it not, above all, for the honest hard-working artisan—the class which forms the great mass of our town population? Well, how does he visit such an institution? Is it because it stands near his own door, or that he happens to be passing by? Is it by snatching half-an-hour from his restricted meal-time, or by loitering upon the errand of his employer? Certainly not! That is neither the way in which he does visit, or in which he ought to visit such a place. More naturally and fitly he makes it the object of holiday relaxation—leaving his too often unhealthy employment and abode, he goes forth with his family as much for fresh air as for amusement. By associating, therefore, an agreeable little excursion with an intellectual treat, you at once benefit him in both body and mind, and add immensely to his enjoyment and happiness.

But, my lord, we have the light of experience to guide us in this matter. I have no exact statistics to refer to, but I believe I am correct in stating, that nearly as many people visit Hampton Court as our National Gallery at Charing-cross. It has been playfully but not the less positively asserted, that even the inhabitants of the Strand are just as familiar with the one as with the other.

Would the site here proposed be less acceptable to the middle and upper classes? I apprehend not: on the contrary, it is strongly my opinion, that if the gallery were placed in Kensington Gardens, it would be far more frequented by both.

There is another class, my lord, entitled to consideration, namely, the professional artist. How would the change affect him? I have no hesitation in answering that by placing the national collection in Kensington Gardens, and thereby compelling the artistic student to take some wholesome bodily exercise in connexion with his intellectual pursuits, we should be conferring upon him a great benefit—a benefit which he would soon learn gratefully to appreciate: but the predilection entertained by artists for Kensington Gardens, as a place of recreation and study of nature, is notorious."

*The Architectural History of Gloucester, from the earliest period to the close of the eighteenth century.* By JOHN CLARKE, Architect. Gloucester: T. R. Davies.

The arrangement of this work, is, at all events, novel; instead of giving detached histories of each building, the author, Mr. Clarke, has divided the work into *periods*, in each of which he has described the parts which belong to the time under consideration. Thus, in describing Gloucester Cathedral, the crypt and nave are treated of under the head of the "Norman period," while the tower does not come into notice until four chapters later, under the "Perpendicular period," and in this way each edifice is dissected, "in the same way that geologists would divide the organic remains of one country into primary, secondary, and tertiary."

This mode of arrangement, while it interferes with the use of the volume as a hand-book for sight-seers, has a value to the student. The work is illustrated with a number of etchings by the author, scarcely up to the mark.

### Miscellaneous.

**INJURY TO EGYPTIAN MONUMENTS.**—A correspondent of the *Athenæum* expresses just indignation at the way in which Dr. Lepsius has treated some of the Egyptian monuments. He gives one instance. "Belzoni's tomb is the richest of all in Art, in illustration of the religion and ceremonies of the Egyptians as well as of their astronomy,—besides having hundreds of square yards of hieroglyphics thickly interspersed with cartouches (or royal names). It is still painted as brilliantly as when the deeply cut letters were first filled with bright colours. From one spot I counted twenty-five white blotches in the limestone, from four to ten inches in diameter, on a wall

covered with hieroglyphics, quite perfect. There were as many more beyond my light and eye, no doubt. This was the work of Dr. Lepsius. The effect is the same and the injury similar to what would be produced by cutting out from the illustrated Froissart of Francis the First at Paris all the royal and noble names through twenty pages. But this is not the whole of the case. From the nature of the close-grained limestone it is evident that not one in three names or words could have been cut off whole; and, therefore, the evidence obtained would be inferior to a wax or a paper cast or a careful copy,—all easily made. There is no work of Art in this case,—no value in the words except as evidence; and the characters are as plain as Dr. Lepsius's many titles on his title-pages in Berlin. What then could be the motive which inspired this laborious robbery, if it were not to conceal from others what the energy of Belzoni and the money of England had made patent to all the world; and this where discoveries as to the period of Ozutaten or Sethos the First, the father of Rhameses [Sesostris], are most anxiously expected and sought for by those who are interested in Egyptian archaeology,—those very persons who buy and appreciate Dr. Lepsius's books?" He says his Arab guide, "after again and again showing us different illustrations of the Professor's industry, and referring to the written and oral opinions of travellers, broke out with an energy which made its own language—'Effendi Inglist tell, Lepsius, one kelb kelb, one jackal, one dog?'—a sentiment which we heartily concurred in, as some of your readers possibly may."

**SPIALFIELDS SCHOOL OF DESIGN.**—The annual meeting was held on the 17th, the Earl of Carlisle in the chair, when a report was read and prizes presented. The chairman said that the school of design in Spitalfields was eminently calculated to confer peculiar advantages on the district in which it was placed. That district was the seat of drudgery and toil. Those who earned out a scanty subsistence by their drudgery and toil were not placed in the magnificent squares near the glittering palaces, or the lofty porticos with which the west end of the metropolis abounded. Magnificent scenery was not to be found in the crowded streets and narrow alleys in which their lot was passed. It followed, then, that a sense of duty, as many of these humble labourers might be a Claude, a Turner, or even a Wordsworth, made it imperative upon them to provide for them means of improving their studies which were not found in their daily walks. The impulse once given, the spark communicated, and the train once fired, they found the lowly inhabitants of cellars and garrets bringing forth the magnificent specimens which had that day been exhibited. He did not mean to tell them that schools of design could create an imagination,—that could only be done by Him who clustered the stars and foliaged the flowers; but they could do much, they could light up the dark and rugged paths of evil, and make the humble labourer discover new beauties in the common rays of the sun.

**ELECTRO-TELEGRAPHIC PROGRESS.**—The electric telegraph has been introduced into Austrian state steamers, to enable the commander to communicate directly with the engine-room.—A convention has been entered into between Belgium and Prussia, for the establishment of an electric telegraph between the two countries. It will connect Berlin with Aix-la-Chapelle, Antwerp, Brussels, Ostend, and the French frontier.—The French Legislative Committee's report on the telegraph has been brought up by M. Leverrier. It states that the north of France will shortly be connected with the centre and the west by electric telegraph. The committee recommends opening the lines to the public under certain restrictions, and that the Government enter into contracts with the journals on reduced terms compared with the ordinary tariff, which is proposed to be three francs for one to twenty words, with an addition of twelve cents a myriametre.—The lines of electric telegraph are now spread over all the territory of the United States. One commencing at Burlington, frontier of Canada, goes to Boston, New York, and Washington, passing through Baltimore and Philadelphia; then crossing Virginia, Carolina, and Georgia, it extends by Richmond,

Raleigh, Colombia, Augusta, and Mobile, to Gulf of Mexico, and embouchure of Mississippi, at New Orleans. From New Orleans a second principal line ascends the valleys of the Mississippi and Ohio to Louisville. Other lines commence from the shores of the ocean, going towards the centre of the country, or ascending to the great Northern Lakes. The line from Burlington to New Orleans is 2600 miles, from New Orleans to Louisville 1150 miles. These lines do not always follow the railways, but generally take the shortest course. The wires are on posts, with glass insulating rollers; but passing a river, or arm of sea, are in gutta percha tubes, sunk under water. The telegraph from New York to Washington passes thus under four miles of the sea. Construction and repair are submitted to rigid economy, and farmers over whose lands the lines run frequently keep them in order for liberty to use the telegraphs.—Notwithstanding an inveterate opposition in the House of Lords, persisted in to the end, the British Electric Telegraph Company's Bill has passed through Committee without material alteration. It is to be hoped the bantling will not now be smothered by *amalgamated kindness*, since it has so sturdily withstood all openly inimical attempts to give it its quietus.

**MODELS.**—The Model of part of Liverpool, the docks, &c., now in progress for the 1851 Exhibition, is to be on so large a scale as to show everything distinctly, and will cost about 750*l*. A model of London has been made for the same purpose, on a scale of 8 inches to the mile, and containing in all 96 square feet. We understand that it exhibits the exact situation of all the public buildings, churches, bridges, railways, &c., with the Thames from Battersea to Rotherhithe, and shows the different elevations of the streets.—We are glad to hear that efforts are being made to purchase for the new Museum at Manchester Mr. Carrington's large plan-model (6 feet by 3 feet 11 inches) of 3,000 square miles of district in England, comprising the country lying in a broad belt between the Humber and the Mersey, including a great part of Yorkshire, Nottingham, Derbyshire, and Cheshire, described by us some time since.—A subscription is on foot to place Siborne's Model of the Battle of Waterloo in the Museum of the United Service Club.

**LOCOMOTIVES WITH ANIMAL POWER WITHIN THEM.**—Signor Clemente Masserano, of Pignerol, Piedmont, has patented a new machine analogous to the American Tread-wheel Coach some time since described in *The Builder*. In the present instance the horses work on a platform, called a pedivella, inside the vehicle, and the power of their weight, as well as of their motion, is made use of by means of ropes communicating with the axle-trees of the leading wheels. It is alleged that a speed of even 60 miles an hour can be realized by means of the mechanism, without any increase in the rapidity of the motion of the horses, which is merely a walk, in which the animal does not actually advance beyond a single step, the platform retreating instead. A model "impulsoria" as it is called, has been brought to this country, and is at work, but at a much more moderate speed than the maximum boasted of, on the South Western Railway. It is thought that, as feeders on branch lines, such vehicles might be both economical and useful.

A PATENT has been taken out at New York for a "peculiar process of making bricks." The patentee in a letter, states that "he can build a blue, or a yellow, or a green, or a rainbow house, precisely according to the fancy of the owner."

**SMITHFIELD MARKET.**—The Markets Improvement Committee of the City Council have reported "on the references made to it on the Royal Commission respecting Smithfield and on the letter of Mr. G. C. Lewis," that they recommend the court to abide by the plan suggested by the committee. In course of a discussion on the report opened on Thursday in last week, a letter was read from the Chairman of the Islington Cattle Market and Abattoir Company, offering to aid in fulfilling the recommendations of the Royal Commissioners, by conveying their property to the corporation on fair and reasonable terms, with a view to the abolition of Smithfield Market.



**RESULT OF THE WATER GAS.**—It has long been conjectured that a universal mechanical power would sooner or later be obtained, either directly or indirectly, through the agency of that great binding chain of the universe, "electricity;" but hitherto the direct application of that agent on the one hand, and the reduction of water to its elements by it on the other, either from complexity or inefficiency, have failed. However, if the American water-gas be really the solid discovery they would have us believe, and if we can obtain the element with such facility and at such an insignificant cost,—if there be nothing hidden, nothing held in reserve, nor any practical difficulties in realizing unlimited volumes,—then, indeed, we have arrived at an epoch from whence will date one of the most grand achievements ever accomplished by practical science. For it is not the power of obtaining a mere gas light without the aid of coals that will result, though that is of vast importance; but we possess the means of acquiring an unlimited supply of "heat" universally in every region and clime, which, if not applicable to all, will be so, to most of our practical purposes, including our domestic, our manufacturing to a large extent, the propulsion of our railway trains, our steamships, &c., the consequences of which I need not enlarge upon; and hence, if there be any reliance to be placed on the American statements, we may congratulate ourselves that we have at length obtained indirectly a universal mechanical power, in addition to the means of heating and lighting our dwellings.—W. G.

**THE WESLEYAN CHAPEL**, built at Bilson, Dean Forest, at the sole expense of Mr. Aaron Gould, was opened on Friday, the 21st June. It is in the Decorated style, 54 feet long, 41 feet wide, and 46 feet high to the ridge of the roof. The west-end consists of a porch, with buttresses. The window over is a five-light, with a circular light of nine panels, on each side of the porch a three-light window, an octagon buttress and pinnacle at each corner. On the north and south sides five two-light windows and buttresses, and at the east-end a five-light window. All the windows vary in the tracery, and are glazed, the margins with stained glass and the inner parts with a cathedral glass, except the east window, which is all of stained glass, and in the centre compartment of west window is introduced a likeness of the venerable Wesley; an open roof of deal, with curved braces, and boarded the whole to imitate oak; inclosed pews of deal-stained oak, and mahogany capping; the pulpit and altar-rail of oak. At the east-end is a school-room, 36 feet long, 22 feet wide, 11 feet high to the wall-plate, and 20 feet high to the ridge of roof. The whole is built of Forest stone, with Bath stone quoins, buttresses, pinnacles, windows, and cornice. Messrs. Jacques and Son, of Gloucester, were the architects.

**IRON.**—A patent for improvements in iron-pipe or tube manufacture has been taken out by Messrs. A. B. Cochrane and A. Slate, of Dudley, engineers; amongst other claims, are, a mode of guiding the internal pattern of moulds, so as to prevent unsteadiness in lifting; a mode of ramming in the sand, by inclosing the guide-rod in a rotating ramming-tube; a mode of drying moulds, by hot air driven through cylinders within them; and a mode of coating cast-iron pipes with glass, with a composition of 130 parts flint-glass, 20 soda, and 12 boracic acid.—The Navy Commissioners and the East India Company's Finance Committee are about to enter into contracts for supplies of iron.—The union of wood with iron, alluded to in a previous note on the effect of shot on iron war-vessels, appears to have little influence in diminishing the deadly effect of fractured shot and splintered iron in "ball practice" on iron ships. Hollow shot, in particular, is shattered and scattered like shells, in every direction, when it strikes on iron sides or beams.—The ironmasters have resorted to a new move to prevent the anticipated further fall in prices. During the last three weeks they have put out of blast no less than twenty furnaces in the South Staffordshire and East Worcestershire districts, and the number is still on the increase, so that the reluctance to diminish wages has issued in a resolution, absolutely necessary, it may be, to take them away altogether. The work of mills

and forges is also being further restricted. Prices, however, have scarcely been prevented from going further down, even by measures so severe, for it is admitted that the resolution to sustain previous prices has been met by "underselling," which just means, that prices have already shown more than a tendency to give way; and, on the whole, as observed by the *Morning Herald's* correspondent, "the transactions at the third meeting of the trade were characterized by anything but that animation which usually indicates a sound and healthy state of trade." Accounts, however, were satisfactorily settled with the masters. The nominal prices quoted in the interest of the trade itself, are:—Bar iron, 6l. per ton; rod and sheet, 8l. pig, 2l. 15s. to 3l. 10s., the latter best grey forge.

**IMPROVEMENTS IN CUTTING METALS, STREET SWEEPING, &c.**—A patent has been granted to J. Whitworth, of Manchester, engineer, for the adaptation to a turning-lathe of two or more tools acting simultaneously, and placed at different radial points of the work; secondly, for adding bottom and top slide rest to slide lathes, with separate traversing motion, as exemplified by drawing; thirdly, for improvements in slotting, shaping, planing, and similar machines receiving motion through a crank, by which the work passes more rapidly in one direction than another. As regards the street-sweeping machine, the peculiar arrangements described appear to adjust the pressure of the broom to the irregularities of the surface of the street, road, &c.

**TESTIMONIAL TO MR. G. A. WALKER.**—A subscription is being organized to present a suitable testimonial to Mr. G. A. Walker, in recognition of his almost single-handed fight during many years with the evils of intramural burial, and the ultimate success of his efforts. A meeting was held on the 10th inst. Lord Dudley Stuart, M.P. in the chair, when the initiatory steps were taken. We trust and have every reason to believe that the appeal will be generally and liberally responded to.

**THE TROPENNY DEDICATION OF ST. PAUL'S.**—Mr. Hume proposes on going into committee of supply to move in the Commons that the regulations for restricting admission to St. Paul's are injurious to the cultivation of those feelings of veneration for religion and of respect for departed greatness which free access is calculated to inspire, and that, considering the result of free admission to Westminster Abbey, her Majesty be prayed to adopt such measures as may afford to the public free admission to St. Paul's and its monuments.

**LEWISTON AND QUEENSTON SUSPENSION BRIDGE.**—This bridge, which, when completed, will be by many feet the longest in the world, in one clear span, has recently been put under contract by the joint companies holding the charters from New York and British Governments. The bridge will connect the shores of the Niagara river at Lewiston, New York, and Queenston, Canada West, and will be 1,042 feet between the points of support; the roadway will be 75 feet above the water, 19 feet wide, and will be capable of sustaining a load of 800 tons. The towers of support are to be built of hydraulic masonry, surmounted with cast-iron caps, which are 76 feet above the roadway.—*American Railroad Journal*.

**BRITISH MANUFACTURERS AND SCHOOLS OF DESIGN.**—The manufacturers were continually crying out that the French and Germans, nay, even the supine Austrians, were excelling them in design and elegance of manufacture; and to supply the necessary defensive weapons English schools of design were instituted. For a time everybody was in raptures; but finding that the schools could not effect impossibilities, and that they really were not immense machines for evolving new patterns (the great manufacturing intellect not rising to designs), the schools were neglected, the old system of vamping up worn-out designs, worthless even when new, was again resorted to, and the nightmare of foreign competition again startles the English manufacturer from his lethargy. He does not stop to inquire the cause of the foreigners' success,—that they have employed schools of design for many years past, and have been content to wait till the art-education of the pupil was complete before they expected him to furnish them with complete designs,

or to reflect that by employing the same means we may do more than our foreign rivals have done,—may carry our distress into their territory, and show that English workmanship, united to sound design, will carry the world's market before it. The mass of manufacturers will not move. They are ready to admit, theoretically, that the school does good to themselves, to their workmen, to the public,—but they will afford no help to extend the benefit. For their own sakes we intreat them to shun off this apathy. The position of the school is really precarious. The Government is willing to extend its grant, provided adequate local subscriptions are raised to meet it. Let, then, an effort be made. Let not a school bearing so closely on local manufacturing prosperity be the only institution ineffectively supported by our townsmen.—*Birmingham Gazette*.

## TENDERS

For the New Market at Billingsgate. Mr. J. B. Bunn, architect.

Harrison.....	£9,755 0 0
Jay.....	9,733 0 0
Holland.....	9,736 0 0
Myers.....	8,859 0 0
Piper.....	8,860 0 0
Trego (accepted).....	8,766 0 0

For the erection of a new Vicarage House at Leighton Buzzard, Beds. Mr. R. Brandon, architect.

Merry, Leighton.....	£1,015 5 7
Mead.....	998 10 0
Hannell do.....	995 0 0
Lumsden, London.....	990 0 0
Brenner, do. (accepted).....	937 0 0

For rebuilding a Warehouse in Canonville-street, Bishopsgate. Mr. Moore, architect. The quantities were supplied.

Harting.....	£1,795 0 0
Piper.....	1,498 0 0
Ashley and Sons.....	1,383 0 0
Brown.....	1,325 0 0

## [ADVERTISEMENT.]

A list of tenders for erecting the carcasses of Two Shops and a Public House on Messrs. Overton and Hughes's Freehold Estate at Holloway:—

Tear.....	£451 0 0
Batterby.....	474 0 0
Hocken.....	453 10 0
Preston.....	450 0 0

## [ADVERTISEMENT.]

Metropolitan Police-office, 4, Whitehall-place, June 29, 1850.

**GENTLEMEN.**—The Commissioners of Police of the metropolis have to acknowledge the receipt of your letter of the 24th inst., relative to the report you mention of the escape of the two prisoners from the cells in Marlborough-street, arising from the insecurity of "Chubb's Lock," and wishing to have the Commissioners' opinion of the matter.

The Commissioners beg to inclose a report from the superintendent of the division on the subject.

I am, Gentlemen, your obedient servant,  
(Signed) RICHARD MAYNE.

Messrs. Chubb and Son,  
57, St. Paul's Churchyard.

## REPORT.

C. Division, June 26, 1850.

I have to report, in reference to the escape of the prisoner Hackett, on the 2nd of May, from the cell at the Police-court, Marlborough-street, that all persons who have examined the lock (one of Chubb's) are perfectly satisfied that he did not effect his escape by picking or forcing it. During his confinement in Newgate the same lock was fastened to a cell-door in the prison, but, after every facility was given to Hackett by the Governor, he could neither force nor pick it.

(Signed) CHARLES OTWAY, Superintendent.

## BUILDINGS AND MONUMENTS.

## MODERN AND MEDIEVAL;

Being Illustrations of the Edifices of the Nineteenth Century, and of some of the Architectural Works of the Middle Ages.

By GEO. GODWIN, F.R.S.,

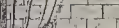
Fellow of the Institute of Architects; Corresponding Member of several Societies.

The Eighth and concluding part of the above work is just published. It contains—The Olympic Theatre, London; St. Aidan's College, Birkenhead; Kneller Hall Training-school, Whitton; Portal of St. Laurenz Church, Nuremberg; Bishop Alcock's Chapel, Ely Cathedral; Lincoln Cathedral, east end; St. Mary's Church, West Brompton; and the New House of Commons, Westminster; also an Index.

The work will be issued as a volume, handsomely bound, forthwith.

To be had at the Office of "The Builder," 2, York-street, Covent Garden, or, by order, of any Bookseller.





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 LITTING. Enamelled Mangers, with double hay-racks, or with  
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 water pipes, rain water pipes, caves, gutters, sash weights, &c., at the  
 lowest prices.







# The Builder.

No. CCCXC.

SATURDAY, JULY 27, 1850.

**H**OW much longer shall we allow 15,000 persons to be annually cut off, unnaturally and prematurely, in this gay and wealthy metropolis? How much longer shall the pain, misery, and waste of money, consequent on the want of proper sanitary arrangements, be borne and suffered? We have often asked the question; we have long endeavoured by all the means in our power to convince the public, how much misery and loss might be prevented by simple and comparatively inexpensive measures, and we must continue to do so as the best mode of bringing about the changes so much to be desired. "Let it be remembered that a sickly population is one of the most costly burdens of a state. Health is the poor man's capital in trade; and whatever deteriorates that entails a direct loss, and eventually a heavy money charge, upon the community. The enormous amount of poverty and destitution in this country, and the consequent necessity for an impost of nearly 8,000,000*l.* sterling annually for its relief, are in a great measure due to the pauperizing effects of preventable disease." But these are not the only social evils involved in this important inquiry. The localities that are the nurseries of sickness and death, are almost invariably found to be the haunts of immorality and crime. Filth and squalor are as productive of moral debasement as of physical deprivation; the two natures of man are so intimately connected, that the defilement of the one is generally associated with pollution of the other.

If the proprietors, architects, and builders who read our journal, instead of merely admitting the truth of what is constantly being said in it on this subject, and agreeing as to the worth of suggestions made in it for bringing about an improved state of things, would carry these suggestions into effect in the course of their practical operations, they would most materially assist in benefiting the world. Routine so thoroughly possesses us, that nine men out of ten who rise from the perusal of an article showing the evils of some ordinary mode of construction, or of the want of certain arrangements, thoroughly convinced of the truth of it, will, in the next house they build, follow the old road, and continue the erroneous mode, or omit the required arrangements.

Before we can hope to see much good done, the public must be made to feel thoroughly the necessity of the change demanded.

The Metropolitan Sanitary Association, to be formed in bringing this about, have just now issued their first report, headed, "The Public Health a Public Question,"\* which, it is to be hoped, will awaken public attention to the subject. It comes at a moment when precautionary measures are much needed, but when, unfortunately, legislators are not very likely to move. The society have already been active;

deputations of the body have attended the prime minister and others on leading sanitary grievances; they have met almost day by day for some months past, and have sent various petitions to Parliament. Money, of course, is needed, and we hope the publication of this report will lead immediately to an accession of subscribers.

Referring to the present Metropolitan Sewers Commission, and the inability of the Commissioners to devote the time required for its extensive operations, the Report says:—"It is not a matter of surprise to this association, under such circumstances, that an outfall for London has not yet been determined—that house and street drainage is not proceeded with—and that even now houses are rotting and becoming most unhealthy, in consequence of the want of communications with sewers within a short distance. The neglect of the Commission to see to the providing of a sufficient current of water to cleanse the sewers is a subject of no little surprise, but the neglect to trap the gullies already existing is calculated seriously to endanger the health of every person who passes by. The greater prevalence of epidemic disease, of late years, taken in connexion with the increasing foulness of the gases escaping from the gully-holes, is not an accidental coincidence."

Against the abominable tax on light and health the association protest strongly; urging correctly, "that health is the capital of the working man, and that, whatever be the necessities of the state, nothing can justify a tax affecting the health of the people, and especially the health of the labouring community, whose bodily health and strength constitute their wealth, and oftentimes their only possession."

That a free supply of light and air is essential to human existence, all the experience of sanitary reformers proves. The agricultural labourer, having an abundant supply of light and air, will live longer, and enjoy better health, than the metropolitan working man, more amply fed, but robbed of air and sun: the metropolitan out-door labourer will live longer than the better fed and clothed tradesman who spends the greater part of his life in a close, dark dwelling.

From an analysis of the 60,000 deaths from consumption which annually take place in England and Wales, the conclusion has been arrived at that tradesmen are nearly twice as liable to consumption as the gentry, "owing chiefly to the hot, close, ill-ventilated workshops, in which the former pass so many hours of the day; that in-door labourers are more subject to consumption than those who follow their employments out of doors, though exposed to all the inclemencies of the weather, and earning less wages, and having, consequently, worse food, clothing, and lodging; and that of in-door labourers, those engaged in workshops are more subject to consumption than those employed at home."

What precautionary measures will do for health may be illustrated by reference to the small-pox. In Russia, previous to the introduction of vaccination, one-seventh of the population died of the small-pox. In Denmark, through strict laws relating to vaccination, mortality from small-pox has been scarcely known since 1800. In Bavaria, as long ago as 1820, this disease was exterminated. Yet in England, through care for the liberty of the subject (?), during the three years ending 1840, the average annual deaths from small pox was *twelve thousand*!

Amongst the illustrations of the effect of disregard of sanitary arrangement, the report gives a startling description of a plague spot in the immediate neighbourhood of one of the most beautiful parts of the metropolis, a neighbourhood studded thickly with villas and mansions—namely, Bayswater, and Notting Hill, in the parish of Kensington. It is called the Potteries, and comprises some 7 or 8 acres, with about 260 houses (if the term can be applied to such hovels), and a population of 900 or 1000:—

"The occupation of the inhabitants is principally pig-fattening: many hundreds of pigs, ducks, and fowls are kept in an incredible state of filth. Dogs abound for the purpose of guarding the swine. The atmosphere is still further polluted by the process of fat-boiling. In these hovels, discontent, dirt, filth, and misery, are unsurpassed by anything known even in Ireland. Water is supplied to but a small proportion of the houses. There are foul ditches, open sewers, and defective drains, smelling most offensively, and generating large quantities of poisonous gases; stagnant water is found at every turn, not a drop of clean water can be obtained,—all is charged to saturation with putrescent matter. Wells have been sunk on some of the premises, but they have become, in many instances, useless, from organic matter soaking into them: in some of the wells the water is perfectly black and fetid. The paint on the window frames has become black from the action of sulphuretted hydrogen gas. Nearly all the inhabitants look unhealthy, the women especially complain of sickness, and want of appetite; their eyes are sunken, and their skin shrivelled.

"It is difficult to state the amount of disease produced by so much organic matter decomposing in the locality, and saturating the atmosphere and water used by the inhabitants. But during three years ending December 1843, there were seventy-eight deaths: of these, sixty-one were under fifteen years of age, fifty-five under five years. The average duration of life in the three years was only eleven years and seven months. In the first four months there occurred twenty-eight cases of small-pox, or one to every thirty-six of the inhabitants, while throughout the other part of the parish of Kensington, with a population of 97,000, only fourteen cases occurred, or one to seven thousand—showing that the potteries district is one hundred and ninety-four times more liable to small-pox than the remaining portion of the parish. The same may be said of typhus fever and some other zymotic diseases."

The report asks if there be no possibility of cleansing this more than Augean stable; and replies, that "the only difficulty lies in the fact that some of the worst parts of the district are the property of one of the guardians."

There must surely be some overstatement here.

When it is proved that the money-loss through typhus fever alone in the metropolis, during the five years 1843-47 was 1,328,000*l.*, and that this might have been prevented, the necessity for an Amended Bill for the Prevention of Contagious Diseases must be evident.

The daily removal of house refuse is of the greatest consequence: thousands are slain by its non-removal. When rain falls on a surface loaded with decomposing organic matter (the back-yards of innumerable houses), when warmed by the sun, it readily yields to the atmosphere vapours charged with disease and death.

A striking evidence of the injurious effect of the effluvia of decomposing animal matter was given at the Whitechapel Union, in 1848. Opposite the workhouse, only a few feet off, was a manufactory of artificial manure. In one morning sixty of the children were seized with diarrhoea, and this was attributed, by the medical attendants, to the disgusting effluvia. Legal steps were adopted, and

\* First Report of the Metropolitan Sanitary Association on the Chief Evils Affecting the Sanitary Condition of the Metropolis, with Suggestions for their Removal; and containing the Proceedings of the Public Meeting held at Freemasons' Hall, Feb. 6th, 1850, and of the Deputations to the Privy Council, the General Board of Health, and the Chancellor of the Exchequer. Published by the Association, 10, Craig's-court, Charing-cross.



after many lives had been sacrificed the works were closed, and the health of the union improved. Five months after a new proprietor opened the premises; some barrels, filled with the putrid matter left by the first, were accidentally broken; the wind blowing from the manufactory, a stench filled the workhouse, and forty-five of the boys were again suddenly seized with severe diarrhoea!

The condition of the dwellings of the poor has engaged the anxious consideration of the association. "They felt, that whatever amount of good was to be effected by sewerage and drainage, by extramural burial, by better constructed houses and streets, by an abundant supply of pure water, and other sanitary improvements, there was an urgent necessity for bringing directly home, in a prompt and efficacious manner, to the existing dwellings of the poor, those sanitary improvements which increased knowledge, ability, and appliances have placed within our reach. The condition of the dwellings of the poor and of the industrial classes is a chief cause of the excess of deaths and of the prevalence of disease, poverty, immorality, and crime in the metropolis."

The physical circumstances in and around a dwelling are a measure of the health and comfort of the tenants. Where there is manifest unfitness for healthy existence there can be no home—no permanent happiness—no self-respect, or moral elevation of character. Disease must come, and with it a whole train of depressing, vitiating, and pauperising influences.\*

"The example set by those interested in improving the dwellings of the poor, has hitherto been followed, in various parts of the metropolis, by few individuals only: the total result, up to the present time, is that which has been just stated. The public, therefore, for many years—perhaps for a century—cannot look for a sufficiency of healthy dwellings, if they are to trust to the operations and influence of voluntary associations alone. The force of example operates but slowly; the knowledge of economical sanitary arrangements does not rapidly spread; the customs and prejudices of society are stubborn and unchangeable;—while disease is persistent; the sacrifice of life constant; the evil great; the remedy by voluntary changes remote; and the necessity for immediate changes all-powerful.

The Association contend it is the bounden duty of Government to step in and afford to the public that security which it is utterly out of their own power by any knowledge, ability, or forethought of their own to obtain for themselves."

The Association appear to have been prompted in their inquiries and remarks solely by an anxious desire to promote the common

welfare by leading to the adoption of measures for promoting the public health, and we think they fully deserve the hearty co-operation of all who would lessen sufferings, promote the happiness of their fellows, and save the fearful amount of life, power, and money now annually wasted in this kingdom.

#### HINTS AS TO DWELLING-HOUSE WINDOWS.

NOTWITHSTANDING the occasional misunderstanding between architects upon subjects and points, it may be presumed that every professional gentleman in England would wish to see a new path struck out, wherein the principles of scientific construction could be pleasingly displayed. By this I do not mean some new style, dissimilar to all former ones; but an order steadily progressing from the styles which have existed, and, like them, based upon incontrovertible principles. The shortest way to a truthful development of accurate designing is, perhaps, within the reach of every architect. And, like many efforts at improvement, the means of reform are within the reach of the reformer's hand, without the necessity of propounding theories or making designs which are as ridiculous as they are unmeaning.

The writer at first proposed to himself the analysis of the present manner of constructing dwelling-houses; but having found it difficult to embody in one article such an important subject, and not wishing to treat thereon in an abstract way, he proposes simply to discuss a portion of the subject: this is the window, the principal feature in which is the arch. On this occasion ornament shall be referred to only in a secondary light, presuming the arch to be an indispensable link in the grand chain of construction.

With regard to arches in general, it is necessary that some meaning should be first found for the word, in order not to make it contradictory to itself. The sense in which it is looked upon, in building, is some durable string of materials, cohesively bonded, truly radiated, and finally keyed, in order to carry a superstructure over some opening. Still, an arch may be one simply, without the necessity of carrying any superstructure; but this must be considered as the consequence of an improved condition of the art, and not merely as an idea suggested by necessity. An arch must have an inclination upwards, whatever may be its shape; and in proportion to the weight bearing thereon, it must have equally strong abutments. An axiom can therefore be established, that—

"An arch shall not yield to the superincumbent pressure." Construction follows, suiting materials to the proper form in which each ought to be built; and not giving to one material the seeming but contradictory appearance of another. Reality and truth, in building, have sufficient ornamental results of the loftiest stamp, without calling in to their disgrace the frivolous and expensive decorations generally used, but not belonging thereto; which have been added, time after time, with the best intention, when the architectural spirit of this nation was almost extinguished.

Instead of going back to the dawn of architecture, I shall commence with the present age, and, if necessary, refer backwards. Thus we find ourselves passing from a very debased condition of existing things, over a wilderness of pseudo-architectural rubbish, until we reach the age in which scientific art began to decline. There is, however, one instance whereat the artist is compelled to rest and laugh. In the year 1745, I think, one Batty Langley published a work in London, reducing Gothic principles to five orders, for the purpose of giving them a fixed position. All persons must admit that he did so, with the greatest zeal, to further the spirit of his day, and to re-establish what he thought was the congenial art of this nation. The principal point of failure was, how to make the window, a Gothic one, reconcilable to the wants of the current age. However, now his work looks ridiculous, not contemptible; and whilst the artist smiles at the feeble attempt, he cannot escape the lesson which his publication teaches, that "copying perfection is superior to designing imperfection."

The commonest feature in modern dwelling-houses is the window. Let any person ac-

quainted in the very least degree with construction, look at it, and behold how it is done. He sees a straight camber arch composed of bricks. This is in itself quite contradictory and made positively so, by filling up the rear and cutting and pointing false joints in rectilinear lines, with imaginary closers; but it is done so, and considered to be a very neat affair in building—one of the *maxima* of modern artificers' work, superior even to the carpenters' boast—whilst in reality it is the most debased idea of the most debased style that could be possibly introduced in the most corrupt and neglected age.

It is not worth the consideration of a moment to inquire when this sort of window-head was first used, but it must be perfectly modern, because we cannot find arches of that description in any of our old mansions or small houses. All square openings, in houses of residence, for a long period, had lintels of wood, and the few found in churches had stone lintels. In some old houses we find narrow segmental brick arches turned over these lintels, and also over the space occupied by the projecting window. Thus are such old houses corrected, and the flat wooden or stone window-heads must also be correct. Wooden lintels are not displeasing to the eye, as they are used through necessity to carry the superstructure, and more so because the mind is satisfied that they can support the weight, which is not the case with reference to the brick camber arch. Wooden lintels may be even tastefully introduced with satisfaction; and if done so on a liberal scale, may be ornamented to superfluous. Stone is the truthful maintenance of an opening, and the eye is not deceived in it, because we know that stone will retain its durability. The principle is also founded on the example of antiquity, back to a rude and even primitive age.

A question may here arise that as iron is now being generally used, and so easily cast to any form at a cheap rate, why not make use of it in window arches, and give it the shape we desire it to have in our designs? The answer there is derived from the very maxim which we now endeavour to establish in architecture—the every material should without any discolouration represent itself. There is no individual in existence who would wish to see iron in residence as a prominent feature, either in its primitive nudity, or painted so as to exactly represent iron. But there is a more absolute reason for rejecting it: iron will not bond. It is not a building material, because it will not enter into cohesion with building materials, whether by mortar or cement. And though iron is a good bearer, it can never look well to the eye, for the mind naturally rejects all incongruities, even when the design is flattering.

The general figure of all windows, in our present dwelling-houses, is rectangular; and if questioned thereon as to the probability of making any laudable change, so as to give them a structure an unique appearance, architects, in general, will tell you it is impossible. They are limited to thirteen, twelve, eleven, and sometimes ten feet of story. This is the reason also that places square-headed windows, supported by brick camber arches, and a doorway with a semicircular or an elliptical arch in the same building; because they are compelled, by necessity, to give as much light as they can: in a low story they must do so at the expense of every rational and geometric principle.

Still they contrive to design square windows with a tolerable degree of variety. Sometimes the ground-floor windows are made strangely long, whilst those of the chamber floor, which may not differ 6 inches in height from the lower one, are not so tall by one-fourth. Occasionally the chamber lights are made 6 inches narrower, to give a sort of proportion to them. The chamber openings are sometimes longer and those of the ground-floor give that store the appearance of a basement. The sills of the windows are often continued round the fronts, like a string; but many architects only use simple sills, and introduce an independent stone table, at 18 inches below them. But the staircase window differs from all the rest—long, narrow, ecclesiastical-looking thing, with a semicircular head.

Another variety has been introduced into the brick camber arch, by those who fancied they were doing so to give it a good effect; and

\* The want of proper clothes is felt very severely in our large towns. Take the following letter as an illustration, just now received from Manchester:—

"Sir,—In the present condition of the sanitary question, it may not be amiss to call attention to the following state of things which exists in this great centre of civilization. The next, perhaps, in importance to the metropolis itself. I have lived for several years in houses in and about Manchester, the rents of which vary from 30*l.* to 40*l.*, taxes 7*l.* or 8*l.* But in no house at either of these rents that ever I have been in was there such a thing as a water-closet. The only miserable substitute provided in my present house, and in all others in the district, is a "pail." I occupy a manufacturing establishment in the centre of this city, capable of employing eighty workmen. No provision of any kind for this purpose has been ever made. I have agitated both my landlords on this subject for four years, and cannot get it done. They will neither grant me leave nor go to the cost themselves (though I offered one of them 7*l.* per cent. on his outlay, whatever it might be), but they will to drive me, the tenant, into doing it at my cost, with a view, possibly, to raise the rent as soon as done. Does not this call loudly for compulsory enactment? Pray, Mr. Builder, do raise your powerful voice, and let not the nineteenth century (now half run through) die away under such a reproach. To do good we must pass through evil; and as it is so, let us be no more afraid of it. I have seen on this disagreeable system in a large city like Manchester there will be subject, in a large city like Manchester, brought up with respect to such an extent as to enable them, with honesty, to occupy houses at higher rents. It has stirred up the gall within me to pass through our expensive prison lately erected (partly at my expense), to see those decency provided for malefactors which I cannot obtain myself. —W."



this is the partial introduction of stone. The Romanesque bulks may be sometimes seen in the elevations of our loftier grade of architects, ornamenting both the jambs, the springings, and the arch-key. I have seen the arch itself with a ponderous stone key in it, sufficient, if not maintained by an iron curb, to break down the whole; on which occasion, I must admit, the arch was slightly tilted. There may hereafter arise a necessity for employing this description of arch in the basement of dwellings, but it must be derived from some source, the legitimacy of which will depend on necessity; on which occasion I fancy that no false joints need be introduced, nor any other building feature that may make us, by drawing imaginary conclusions, think that the edifice is upheld by magic.

Square-headed windows do not belong to a style of building roofed prismoidally. Anything rising from the mere horizontal line would ease the mind of the notion now imparted—that a person may take an afternoon's airing on the roof of the premises. A square window is in appearance very base; and it is sufficient, in point of feature, to condemn any domestic design. No person would object to seeing it in a prison; and perhaps it may suit the hospitality of a workhouse. But where there is a feeling to live, and another to independently enjoy the comforts of this world, above the sphere of prison or workhouse discipline, surely those who are sufficiently independent to do so should construct their windows differently, and make them fully expressive of themselves.

A square-headed window is really a Gothic one; and the idea of bringing an arch to a straight line is equally so. Murphy, in his introduction to the Monastery of Batalha, says that the square windows in the refectory of that edifice are absolutely in accordance with the style of the building, and that no other sort of opening would answer the position in which they are placed.

An architect and his clerk will select one of the four faces of a good-sized house, value perhaps 2,000*l.*, in order to give it an effect. Upon this front, particularly in point of window, they lavish expense at the cost of all the others. The consequence is, that a person coming by the backway to the premises, on an invitation, cannot recognise it, were he previously introduced by the front door. Mainly, it is something in the Roman style or school, as far as free labour can be made tantamount to forced work; but in the rear it is the exterior of the Alhambra. There is one face for the road and another for the cows. Now this is all on account of the windows. They give it decoration to one face, which disappoints a person when viewing the others; and what with narrow, stunted, pointed, and semicircular openings, one imagines himself translated from reality even to the country of the Laputians.

They have gone so far lately, in their estimation of the *straight* brick camber, as to get fire-brick cast into entire window-heads representing this miraculous arch, with all the joints, flues, and radiations cut perspicuously. I found them in several places in Manchester, and was surprised how they even kept their positions, without any superincumbent pressure. They do not look well; and those who have outnunciated them wish them away. What can look well, in a permanent structure, that shows an imaginary feature? Here is one of the noblest traits in architecture—an arch—so hypothetically used that it cannot maintain itself.

When putting decoration on the front of a house, an architect will certainly use a little quantity of stone, for the purpose of giving it design an effect. The house must have a noble entrance, and this absorbs his means nearly, particularly if the proprietor require an ionic entablature. However, the architect goes a little farther, and takes the liberty of dressing the window over the porch with stone; sometimes with columns; at other times with architraves; but always finished with segmental or triangular pedimental heads. Then the other sister windows mourn in the nakedness of brick, because this one is so much exalted above them, for no other reason than that the builder took a liking to it. And there is a greater objection to the singular favour; or oftentimes the ornamented window is only that of an insignificant room over the vestibule. I noticed a house lately in the neighbourhood of a town not far from Manchester,

one that from size and appearance may be considered a second-class mansion, and was surprised to see one of the windows with a pointed arch. On inquiring the particular apartment which it lit, I was informed that it was the window of the bath-room and water-closet.

When a mansion is constructed with a stone front, and the design is got up with what is termed first-rate talent, we find a few diminutive columns supporting a prostyle porch, with its clumsy square-headed entablature; inasmuch that the porch does not seem an integral portion of the building, but something detached, chapel-wise; and a more forbidding feature cannot be placed in front of a house than a prostyle porch. Where we find the columns shot up to the roof, in some Grecian villas, the beholder is at once struck with the notion that he is viewing some public structure. But on the former point, the idea is ridiculous; because each window is as much an opening in the mansion as the door, and they should be also projected to make them harmonize. They are on the face of the wall, some with moulded architraves, others with small ionic columns supporting segmental or triangular pediments, more with ponderous entablatures surmounted by a broken blocking, that forms the stylobate of another row of windows, quite different in features and design. In fact, such is the variety of styles introduced, where pecuniary means are at hand, in order to give the mansion an effect, that one is bewildered to discover how the architect got out of the enigmatical hobble into which he plunged himself, to seek for novelty. Every story is a distinct order, as if the building were three flats for different families, instead of being the sole abode of a wealthy gentleman. Then we find a chaos of ornament, to astonish the eyes of an ignorant spectator: without reference to order, date, utility, construction, or meaning, they are introduced to cover the multitude of defects, which may be otherwise detected. But there cannot exist a more erroneous idea in the mind of man than this. All the ornamental details that can possibly be introduced on a design will have no effect in correcting errors—in fine, they are thrown away, when the main lines that represent the features of the building are inharmonious. And if a structure will yield pleasure to the mind, when decorated to the highest limit of artistic skill, it will look equally beautiful in its lowliest simplicity.

Though it was only intended to refer here to dwelling-houses, I cannot help making a remark on buildings so prominent in every large town—I mean warehouses. Here the window is the only principal trait; but it is repeated so frequently that a tasteful application thereof is indispensable. Consequently, we find very few warehouses that look even indifferent, none that look well. This arises from the contradictory habit of introducing windows which our eyes tell us are to be found in dwelling-houses; and it is quite displeasing to find a colossal building, erected for general traffic, without one truthful feature to distinguish it from the smaller edifices built for domestic use. It has openings, except the door, sometimes, of the same size as an ordinary house, which look like so many loopholes. These are disgraced with scraps of stone, mixed up confusedly with brick; and on this occasion the variety is so excessive, that it produces disgust. With judgment, care, and study, how may not this particular branch of architecture, the necessity for which did not exist amongst the Romans, be made beautiful and expressive of its mercantile character! On the window it solely depends, the design of which must be sought after with zeal and perseverance.

It may not be amiss to fall back on our predecessors, in this country, in order to copy out from their styles some features that will look well in domestic buildings. From them are the ideas to be obtained, with much greater probability of success, than from any person's confused notions of the present time. But it must here be admitted, that when about to copy from them, two points should be laid down, and not departed from:—

1. Never to introduce pointed windows in a mansion.
2. Never to introduce tracery in the lights of them; for these points being now fully established as belonging to the ecclesiastical

department of our art, they should be allowed to continue so, as characteristic of a church.

The first step towards progress is to dispense with mere straight lines in window heads, and substitute in lieu thereof some arch of a truly geometric form, whether rectilinear or curved. Let the elevation assume either a triangular or a circular shape, but let it be uniform throughout in point of expression. If assuming the Saxon angle, the lower stories may have very depressed windows, and they can be made more pointed as we ascend; and if the circle be adopted, it would not be difficult to begin at the basement with low segments, and finish at the upper tier with semicircles. Further, make all ornament subservient to the general outline, and let no introduction of decoration destroy that contour. Continued sills altogether take away the effect of windows giving them the appearance of commencing the building again; whereas windows should be linked together, if at all, at their springings. Lightness with solidity, expression with repose, and ornament with chastity, is what I would wish to see. It can be obtained with perseverance, and making reference to examples we have before us—according to the manner in which they were used—not in the debased habits to which architects have been for many years accustomed.

The principal obstacle to progress in architecture is prejudice; and that will for a long time mar its success. Several who have become familiar with past discipline will scarcely ever be led to adopt the beautiful ideas of forthcoming progress. But they must pass away, and a new generation will erect upon their remains a fabric which will be permanent in its foundation and progressive in its improvement. That ages should change, and institutions improve, amend, and cast off their stale habits, and architecture not do the same, is paradoxical. It should also be changed scientifically with the spirit of improvement, adopting the new and well-altered opinions of mankind, and making its designs perfectly congenial to the existing generation, without sacrificing its artistic character. Should architects make a trial-change of the window in modern dwelling-houses, and endeavour to design the entire building in accordance with the adopted form, then, indeed, we may hope for some advance; and without looking for beauty or magnificence in palaces, castles, and mansions, the spirit would extend to the dwellings of the humble; and the smallest cottage in England may be made a gem of architecture.

There are two styles belonging to this country which may be well adapted to dwelling-house windows, and these are the Norman, in all its shades, and the Saxon. They could, by study (I do not mean to say that we can arrive at a satisfactory result by guessing at how they would look) and many repeated designs, be brought out to represent our wishes; and should we fail, by repeated designing, to bring out satisfactorily what we do desire, it is more than probable that a new style will spring out of the research, superseding their application, and suitable to all the purposes of modern domestic life.

But there are many untried ranges in architectural science which may be ventured upon with a similar view in mind; or else, with the resolve to abandon them the moment we find that they are quite inapplicable. The ellipsis may be placed the narrow end upwards; the parabola may be used, and, indeed, the triangle can be employed, with great taste and infinite variety; and any person may venture to make the application without fear, because it is impossible that, in the attempt, he can commit greater errors than are now committed in the architectural designing of windows.

I am not an advocate for adapting old usages to new customs, but until we arrive at some perdurable conclusion, I must recommend that the ancient custom of constructing windows be followed out; and, in conclusion, I hope that I shall be excused, by practical men, for the boldness with which I have, through zeal, delivered my sentiments.

FRANCIS SULLIVAN.

DESIGNS FOR CARPETS.—We were glad to notice the other day in an advertisement from a carpet warehouse in the metropolis that the designs for the carpets were by eminent architects.



## PERPENDICULAR WINDOW, DALLING.



## PERPENDICULAR WINDOW, DALLING.

In passing through the village of Dallington lately, I met with a note-worthy Perpendicular window, a sketch of which I inclose to you. The tracery and stanchions particularly attract notice. I am sorry I could not take any dimensions or a plan, but the peculiar form of the tracery is perhaps worth preserving.

J. W. H.

## SIZE OF CAST-IRON BEAMS.

The following is from a useful collection of tables to aid the calculation of water and mill power, drainage, &c. by Mr. Beardmore\*:  
*Table of Safe Load for Cast-Iron Beams, if equally distributed, expressed in Cwts.*  
 For Beams 6 to 16 Inches Deep.

BEAM SIX INCHES DEEP.						BEAM EIGHT INCHES DEEP.					
Dimensions of bottom Flange in inches.	4 x 1	5 x 1	6 x 1	8 x 1½	9 x 1½	4 x 1	5 x 1	6 x 1	8 x 1½	9 x 1½	
Length, feet.	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	
5	133	166	200	333	391	177	222	266	444	521	
6	111	139	166	277	326	148	185	222	370	435	
8	83	104	125	208	244	111	139	166	277	325	
10	66	83	100	166	195	89	111	133	222	260	
12	55	69	83	138	163	74	92	111	185	217	
14	47	59	71	119	140	63	79	93	159	187	
16	41	52	62	104	122	55	69	83	138	163	
18	37	46	55	92	108	49	62	74	123	144	
BEAM TEN INCHES DEEP.						BEAM TWELVE INCHES DEEP.					
Dimensions of bottom Flange in inches.	5 x 1	6 x 1	8 x 1½	9 x 1½	10 x 1½	6 x 1	8 x 1½	9 x 1½	10 x 1½	11 x 1½	
Length, feet.	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	
6	231	277	463	521	578	333	555	625	691	916	
8	173	208	346	391	434	250	416	469	521	688	
10	139	166	278	313	347	200	333	375	417	550	
12	115	139	230	260	289	166	278	312	347	458	
14	99	119	198	223	248	109	238	268	298	393	
16	86	104	172	195	217	125	208	234	261	344	
18	77	93	154	173	193	111	185	208	232	306	
20	69	83	138	156	173	100	166	187	209	275	
BEAM FOURTEEN INCHES DEEP.						BEAM SIXTEEN INCHES DEEP.					
Dimensions of bottom Flange in inches.	8 x 1½	9 x 1½	10 x 1½	11 x 1½	12 x 1½	8 x 1½	9 x 1½	10 x 1½	11 x 1½	12 x 1½	
Length, feet.	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	
8	486	547	607	802	875	555	625	694	916	1000	
10	389	438	486	642	700	444	500	555	733	800	
12	324	365	405	535	584	370	417	463	611	667	
14	278	313	347	459	501	317	357	397	524	572	
16	243	274	304	401	437	278	313	347	458	500	
18	216	241	270	357	389	246	278	309	407	444	
20	195	219	243	321	350	222	250	278	366	400	
22	177	199	221	291	318	202	227	250	333	364	

\* Hydraulic Tables.—Waterlow and Sons, Parliament-street, 1850.

## A NOTE FROM JAMAICA.

THE Lunatic Asylum at Kingston is progressing towards its completion. Mr. Harris is the architect. It is being erected under the superintendence of Mr. De Walden, the clerk of works. A market was lately erected at Kingston: it is a strange structure, and was designed by a carpenter, who was paid 10l. for his plan and five per cent. for his superintendence. It consists of brick pillars, 18 inches square, carrying a wooden roof. No provision against the weather has been made: it strongly resembles the buildings on estates in which the fuel is stored (structures of the rudest kind). To hide this magnificent conception, screen walls, pierced with windows fitted with louvre blinds (called jalousies) has been put up; and so disgusted are many members of the corporation at the whole affair that it is probable an architect will be called in, as soon as the contractor shall have finished his contract, to give it a more respectable character. The parish church of St. Mary's, Port Maria, has at last been commenced: it is to contain 650 sittings, and is of Early English character. It consists of a nave, with north and south aisles, chancel, and robing-room with tower at north-west angle. The western entrance is through the tower, which, for two stories in height, is square in plan, then takes an octagonal form, and is surmounted by a pinnacle of stone, carrying a plain meteor cross and vane. There is a southern entrance to the window in western front is a triplet; the side windows of aisles are coupled lancets; the east window of chancel is a triplet, and the north and south walls of chancel are pierced by single lancets; the nave is separated from the aisles by octagonal pillars carrying moulded arches. There will be no clerestory. The passages of nave, aisles, together with the floor of chancel, will be paved with red and black tiles of Minton's manufacture. The sittings will be all open and free; cedar will be the material used. The pulpit, reading desk, altar-rail, altar, and lettern will be mahogany, of characteristic design; the font and altar-piece will be of Caen stone; the roof will be of pitch pine, framed with open timbers, and covered with white pine boarding, on which will be laid red tiles. The whole of the wood-work will be wrought and varnished. There is to be a gallery at the western end for the reception of the organ, entered from the tower. The building is the plainest and most simple character, and will not cost more than 3,300l.; the materials employed will be brick, with stone dressings; the architect is Mr. Blayney Wm. Walsh.

The cathedral at Spanish Town is progressing slowly; the roof is on the nave; the funds are wanting for its completion.

## PROPOSED CANAL ACROSS THE ISTHMUS OF DARIEN.

## CAUTION TO CAPITALISTS.

"The grand project of opening a communication between the Atlantic and Pacific Oceans, by means of a canal across the Isthmus of Darien, is again occupying the attention of the public mind both in Europe and America. The Nicaragua treaty is said to have passed the Executive department of the United States' Senate, and, should it be confirmed, there is not the slightest doubt of its meeting with the sanction of the British Government. The cost of this stupendous undertaking is estimated at about 5,000,000 sterling; two-thirds of which sum the British minister at Washington (Sir Henry Lytton Bulwer) has guaranteed to raise among the London capitalists alone! Alluding to this subject the *New York Herald* says," &c. &c.—*Nassau Guardian* June 15, 1850.

Without in any way pledging myself for the accuracy of the above statement, and leaving all responsibility on that head with the Editors of the *New York Herald* and *Nassau Guardian*, I cannot remain silent where there is even a reasonable probability of further and gigantic speculations being made with much British capital,—that is, much British happiness and independence being risked on the bursting or not bursting of a new South Sea Bubble,—without earnestly calling the attention of those concerned to what is probably their present position in this undertaking; and it is done in the hope that you, Sir, will enter into the matter with as much zeal and good spirit as you have shown throughout the mat-



ter of intramural burials and other sanitary questions.

Your paper is not called the "Master-Mason" or the "Journeyman Bricklayer;" neither is it confined to notices on constructional details and technicalities,—but is open, apparently, to the constructive art and science in general, and their interests at all descriptions. Such being, it is apprehended, the true import of the modest title of the "Builder," allow me to beg your assistance, on plea of civil engineering, in calling public attention to a certain description of hazard, of which I see no notice in any of the newspapers that reach this out-of-the-way colony, respecting the canal across the Isthmus of Darien.

When a resident in a certain disturbed district, some years ago, a friend asked my opinion as to the advisability of making investments in land there. In reply, he was recommended rather to bury his money on the edge of Vesuvius or *Ætna*,—he might possibly see it again, in some shape or other; but never more if sunk as he suggested.

This was, of course, said in the spirit of one who considered volcanic investments as somewhat venturesome; but who could have supposed that the sober sense of Englishmen would ever dream of laying at least 3½ millions\* *à cheval* of the grand volcanic main or trunk of the western world, without reflecting on the geological character of the district across which the line, whether for canal or railroad, must necessarily run!

We all know that a canal, especially at the locks, requires every possible care and attention in construction; and, granted that the engineers acquit themselves perfectly under all the disadvantages of climate, remote position, expensive indifferent labour and workmanship (with but little command over them), and frequently perhaps unsatisfactory material, who can warrant its remaining staunch for twenty-four hours together in a country (according to Stevens and others) "bristling with volcanoes," and liable at any moment, at any point, to convulsive disturbances of earthquakes? A slight shock will start any pair of gates from their fastenings, break up the masonry, unsettle the invert, and unstanch either the lock or any other part of the undertaking,—especially in that vexatious way that, without throwing down a single brick or block of ashlar, so ruins the work that all must be taken down, to the grievous taking down and reduction of all dividends.

London papers have much artistic ability at easy command, and you, Mr. "Builder," will do the State good service by offering a small premium for the best "composition" illustrative of the effects of "one night's earthquake at a canal lock," accompanied by an essay on the results of such commotions as regards the levels and general capability of holding water.† The like remark applies to railroads: in neither case can I learn that there is any insurmountable difficulty as regards either design or construction generally; though no one has as yet ventured, I believe, to estimate the rate per mile at which locomotive or other engines may venture to work with safety

and confidence where the rails may be this way and here to day, that way and there to-morrow.

It is not, of course, meant that this will be the occurrence of every day, every month, or every year; but whatever risks may be permissible in light and temporary investments, the "Doctrine of Chances" must be utterly ignored when the outlay will be enormous, and the undertaking is intended to be permanent—for aye and for ever.

The hazard of life and capital would thus be almost indefinite, as far as railroads are concerned; the risk of capital would probably be greater than that of life as to canals in like cases; but whether life or capital be jeopardised abroad, the disturbing effects on English hearts, hearths, and homes would be terribly felt across the Atlantic.

Who would stake 1,000*l.* on the general quiescence of the volcanoes in the region in question for twelve months together? Who then ought to venture 5,000—possibly 10,000 times as much of either British or American prosperity and happiness—

"Where the slumbering earthquake lies pillowed on fire,—  
Where the lakes of bitumen rise boilingly higher,—  
Where the roots of the Andes strike deep in the earth,  
As their summits to heaven shoot soaringly forth."—*Manfred*.

I beg, therefore, that this question may be forthwith submitted to those concerned, and who seem disposed to involve themselves in gambling speculations on the east and throw of a volcano, with every odds against them. The assistance of the Geological and Geographical Societies may, it is presumed, be confidently reckoned upon in the preparation of a well-detailed plan of the Isthmus of Darien, containing all that has been noticed by Humboldt, Stevens, &c. &c.

Thus far, Mr. Editor—thus far, dear friends, lovers, and countrymen—I have spoken in a style directly in keeping, I hope, with the gravity of the question; but, "as many men have many minds," if the following syllabus of the whole be offered in a somewhat lighter tone, let it be considered as a change made to suit other tastes. Nevertheless, though given in real good humour, it is delivered against these measures in real good earnest—"A free and gentle passage of arms," with anything but barbed lances.

I pray you, then, dear Mr. Editor,—dear friends, lovers, and countrymen,—to study the works of Humboldt, Stevens, and all the writers on these,—the lands of "pitch and toss,"—very diligently; and bear well in mind the following (in some respects) logical series of "truismo-axiomatic" maxims:—

Maxim I.—Never build "castles in the air," for though imagination may at times supply reality, they, at least, want stability.

Maxim II.—Never build chateaux en Espagne" (be it "old or new") on a sandy foundation; such also are generally wanting in stability.

Maxim III.—Never build a fixed engine-house or a station-house (especially refreshment-rooms) on the summit of a volcano; it may be dangerous, and most likely wanting in stability and permanence.

Maxim IV.—Never build any one of the above-mentioned at the foot of a volcano;\* it will not be less dangerous and scarcely less wanting in stability and permanence. However, on the margin of the beautiful lake, between volcanoes Nos. 13 and 15, is a most tempting site.

Maxim V.—Never choose a residence near—still less immediately over—a powder-mill; it may not blow up, or it may, but the insurance offices would certainly think it a "doubly hazardous investment" of life, limb, and property.

Maxim VI.—Never construct public works, such as canals, with numerous and very expensive locks, railroads, &c. &c. very near, still less immediately over, the hollow ground of unknown, inexplicable, and ever variable subterranean labyrinths, from "any one point

\* The canals may perhaps plead fair exception, as the water volcanoes may be reckoned on occasionally for, at least, filling them; nay, a ready supply of boiling water will be a point of economy for locomotives; but mud and cinder volcanoes must be avoided, that is, if we can always predict the ejections.

of which to any other point" (with all the latitude of Euclid's two first postulates in choice of such points), Plutonic communications and earthquake notices can be delivered with an energy in nowise short of that obtainable by the explosion of gunpowder.

Maxim VII.—Always count the cost of your undertakings, especially when the neighbourhood of gold-mines renders it likely that the amount will be poetically indefinite.

Maxim VIII.—The tarry-at-home speculators need never trouble themselves on the sanitary questions in which their servants, the Local Adventurers, are involved; but as these have some interest in the said questions, "they will find something to their advantage" if they will consult pages 339, 343, Stevens, vol. i. for general statements; and their individual application to even the passing traveller in pages 314, 369, 370.\* The mortality among our troops in Ceylon, Corfu, and other places, whilst employed on making roads through forests or otherwise disturbing accumulations of decayed or decaying vegetable matter, should not be forgotten.

R. J. NELSON,  
Captain, Royal Engineers.  
Nassau, Bahamas.

P.S. Since the above was written, the mail steamer has brought the May papers with confirmation of this untoward affair: we have no time to lose,—*Laissez aller! Ventre à terre!*

#### THE NATIONAL GALLERY AND KENSINGTON.

MR. DOYLE'S opinions on the removal of the National Gallery to the site of Kensington Palace are evidently prompted by a commendable desire to get over a great difficulty, and to extend the advantages already afforded to the public, both of intellectual improvement and recreation; but it is to be regretted that a work so replete with kind intentions should have been written and published without reference to authentic evidence, and, therefore, in direct opposition to the facts.

Supposing that as many persons would visit the national collection if removed to Kensington as at Trafalgar-square, Mr. Doyle says in his letter to Lord John Russell (see *THE BUILDER* of last Saturday), "My lord, we have the light of experience to guide us in this matter. I have no exact statistics to refer to, but I believe I am correct in stating that nearly as many people visit Hampton Court as our National Gallery at Charing-cross." As Mr. Doyle had not the statistics to refer to, I beg to supply the deficiency, in round numbers, from the returns published by the House of Commons. From them that gentleman will see, that the "light of experience" exhibits results more than fourfold against his opinion. The numbers are—

	1840.	1849.
At Trafalgar-square ..	503,000	— 775,000
At Hampton Court.....	122,000	— 180,000

Shewing an excess in favour of the National Gallery of 381,000 — 595,000

With, I am happy to say, increasing numbers at both, but that increase constantly in favour of the National Gallery.

If Mr. Doyle intend to pursue the interesting subject, I shall be happy to give him further information on objects which have, for many years, employed much of my time, as secretary to "The Society for obtaining free Admission to National Monuments, &c.," which information has been obtained for the use and benefit of the public. Geo. FOGGO.

\* Stevens, vol. i., pp. 206, 267 (Antigua, Guatemala).—"On each side of the ruins of churches, convents, and private residences, large and costly, some lying in masses, some with fronts still standing, richly ornamented with stucco, cracked and yawning, roofless, without doors or windows, and trees growing inside above the walls."—"This was the second capital of Guatemala, founded in 1542, on account of the destruction of the first by a water volcano. Its history is one of uninterrupted disasters."—"Many severe shocks of earthquake were felt at different periods; the one in 1665 seriously damaged some of the principal buildings; those of 1675, 1576, 1677, were not less ruinous. On the 27th December, 1801, the population was again alarmed by the volcano, which began to emit fire; and so great was the quantity of ashes thrown out and spread in the air, that the sun was entirely obscured, and artificial light was necessary in the city at midday."—"And so on, reciting eruptions, earthquakes, sickness, and all sorts of disasters in the years 1686, 1691, 1691, 1696, 1717, 1778."—"The most melancholy epoch in the annals of this metropolis: it was then destroyed, and (as the capital) rose no more from its ruins."

\* The 5,000,000*l.*, quoted by the *Nassau Guardian*, is possibly taken from Stevens's work given (at p. 414) by Mr. Bailey, at least ten years ago, on "the usual contract prices in the United States," at from 20,000,000 to 25,000,000 dollars. It is hoped that a severe audit and scrutiny will be made in London on the data and computations on which estimates submitted to the British nation are based. The United States Government are at this moment paying 2½ dollars (10*s.* 6*d.*) to carpenters and masons, and 1½ dollars to labourers on the fort now being built at Cag West, at the south-west end of the Florida Reef. What then, may we ask, will be the wages of *Archæologia*, and the like, in the least primitive of work, whether in stone, wood, or metal, when so near California? Sibola's shipwreck on the Lookstone Mountain was occasioned by all the iron fastenings and bolts being drawn out thereby; in the neighbourhood of a magnetic sea, the gold country, who can calculate on the number of hands that will be attracted thither at the expense of the Canal Company,—and the wages that must be paid to prevent the like desertion by those that remain? No legal document can bind in such cases; the gold streams of the west will prove to be the long-sought "Universal Menstruum"—capable of dissolving every bond and engagement, and of solving every possible case of conscience. What the bonuses of the poor innocent 5,000,000*l.*, with the lockage for the two canals, amounting to 2,000 feet of vertical dimensions? The tunnel scheme (p. 413) may turn out to be like "tapping a furnace."—Prima's shield would be but an indifferent protection against a burst of lava, or boiling water. By the way, Mr. Editor, can you tell us how a "deep" tunnel, sitting and 1 mile of tunnel, "for the largest steamers," is to be done in 18½" (18½" say 10")—545 feet of lockage on both sides of ridge of the isthmus?

† In a pamphlet on the recent tornado in this island (now in the press of J. Day, Melton Mowbray), I have given two sketches of "havoc," which, though by a different agency, may serve as the "motivo" for such design, should the first quotation fail as a stimulus to invention.

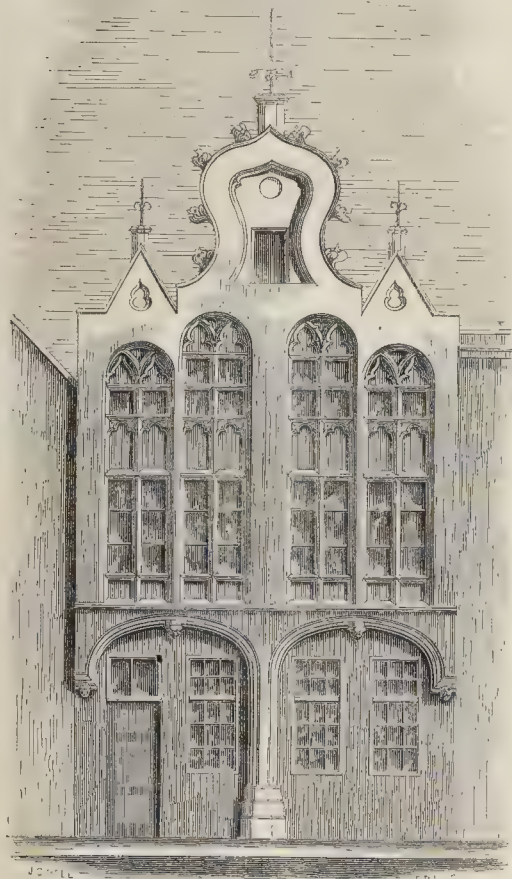




ALACUTIA, THE RESIDENCE OF PRINCE WOROZOW.—MR. EDWARD BLOST, F.R.S., ARCHTUAL.



## ANCIENT HOUSE, BRUGES.



## ANCIENT HOUSE, BRUGES.

BRUGES, the City of Brick, is eminent for the picturesque variety of its street architecture. The crow-stepped gables of the Austrian and Spanish periods are everywhere contrasted with the fantastic forms of the Renaissance and subsequent styles. There is considerable difficulty in ascertaining the precise date of these buildings, but the approximate period to which they belong may be determined at a glance. One of the earliest is that on the "Grande Place," called the Prison of Maximilian, wherein, A.D. 1486, that emperor was confined by his turbulent subjects. The incessant troubles, both foreign and domestic, which afflicted Flanders throughout the sixteenth century could have left but little leisure for the practice of the fine arts, but the commencement of the seventeenth century brought the enlightened government of Albert and Isabella, which, together with a twelve years' truce, was productive of the most beneficial results to the Low Countries. To this period, contemporary with that of our James the First, are attributable the majority of these interesting buildings. The accompanying illustration represents a house on the "Rue Flamands," and may be taken as a type of its class, although it presents some peculiarities: these are, first, perforated tracery heads in two of the upper windows, which are very uncommon, the window opening generally finishing square, and the semicircular head being filled in with blank tracery, as in the other two upper windows. The other peculiarity is the form of the gable, which is usually crow-stepped, but here presents a compound curve crocketed.

These interesting houses lose much of their effect from the monotony imparted to them by the universal application of whitewash, in the use of which the Flemings of the present day emulate the most zealous English churchwardens of olden times.—J. G. H.

## MASTERS AND MEN.

At Stourbridge, on Wednesday week, a chain manufacturer charged a workman, with whom he had contracted for twenty-four months, with deserting his service. On the part of the workman (Homer) it was objected to the written agreement—Firstly, That it was bad for want of mutuality. Secondly, That the magistrates had no jurisdiction, because the work agreed to be done by Homer was by way of contract; and there was no relation of master and servant between his master and himself. Thirdly, That the agreement was null and void under the 1 & 2 Wm. 4, c. 47, s. 2, in consequence of the weekly deduction for a stipulated sum, for blast, &c. Counsel (Best, M.P.) was consulted, and on his opinion the magistrates acted in deciding to commit Homer for one month to hard labour, with the option, however, of returning to his work, which latter Homer preferred. Three other men employed on verbal agreement, with fourteen days' notice mutually, were ordered to return to work, failing which, to suffer each one month's imprisonment with hard labour. The men complained that their wages were reduced without any notice. They were strongly advised by the magistrates to return to work and give their masters the fourteen days' notice, and assured that if refused the wages agreed on without notice, the magistrates would protect them by making orders on their masters to pay the full amount. This appeared to satisfy the men, who also consented to return to work.—A great anti-truck meeting was held at Tipton on Monday in last week, when 5,000 to 6,000 nailers, chain-makers, miners, manufacturers, tradesmen, and others attended in the Castle Meadows notwithstanding unintermitted rain, and resolutions for the effectual suppression of the tommy-shop system and the amendment of the Truck Act, were unani-

## ALAPHA, THE RESIDENCE OF PRINCE WORONZOW.

THIS palace is erected on the south of the Crimea, facing the Black Sea. The property on which it is built was purchased by the Prince of the Tartar proprietors, in small lots, this being the general principle on which the greater part of the property in this part was held previously to the Russian nobility establishing themselves as residents there. The character of the country is peculiarly beautiful, and the climate delightful: it is sheltered at the back by lofty precipices rising to the height of 2,000 feet, and open to the south to the sea breezes. The space between these precipices and the sea averages about six miles, and is broken into the most irregular and picturesque forms, combining, along with vast masses of rock, the most luxuriant vegetation, and the greatest fertility.

The designs were made during the Prince's residence in London in the year 1836, by Mr. Edward Blore, architect, and the works were commenced in the following year, a clerk of the works having been sent out to superintend workmen, to act as foreman, and instruct the native workmen; and materials of various kinds were also sent out, particularly cast-iron for ornamental purposes, lead pipe, locks, hinges, and all such other matters as the country either did not supply or made of a very inferior quality.

The arrangement of the plan was necessarily very much regulated by the unequal nature of the ground, and the masses of rock interposed between its several parts. The front is, consequently, very much elongated, and presents no continuous face or line. The material used is granite, the only building material to be got in abundance in the neighbourhood, with small portions of freestone for the more delicate ornaments, where great labour was required.

The building occupied about three years in its erection, and it is a curious fact connected with it, that its first occupant was the present Emperor of Russia, who resided in it a short time during his stay in the Crimea, on his progress through the southern provinces of his vast empire.

It ought to be stated, that, in consequence of Prince Woronzow's family connexions with England, and his having resided for a considerable portion of his early life in this country, he was desirous that one of the fronts of his palace should be designed in the style of the ancient domestic architecture of this country, whilst the opposite front should, in compliment to its local connexion, be rendered more Asiatic. In accordance with this wish, the entrance front was, therefore, designed in the former, and the garden front in the latter style, with such an admixture of the two styles as was necessary not to render their combination



mously passed, as were also addresses to the Admiralty and the East-India Company praying them to refuse to contract with truck masters. The operative glass makers, convinced of the evil and inutility of strikes, have called a conference of operatives in all branches of the flint-glass trade, chiefly with the view of organising a system for the removal of the surplus labour at present prostrating the manufacture, and taking other steps to benefit their condition generally. Birmingham, from its central situation, was chosen as the seat of the conference, which met on Thursday last to consult on these measures. The places represented, according to the local Journal, are London, Edinburgh, Dublin, Birmingham, Manchester, Glasgow, York, Bristol, Belfast, Newcastle-on-Tyne, Watford, St. Helen's, Warrington, Tutbury, Longport, Rotherham, Catliffe, Haverton Hill (near Stockton-on-Tees), Dudley and Holly Hall, Stourbridge, Worsley, Hunslet (near Leeds), and Worshorodale (near Barnsley). Various resolutions have been agreed to, and are to be reported. One of the staple branches of the Sheffield manufactures—the table-knife huffers—have been on strike for higher wages during the last five weeks. The object of the workmen is to obtain the rate of wages settled with the employers, and constantly paid from 1843 to 1847. In the latter year wages declined considerably, and they have not rallied with the general improvement of trade. "If a committee were appointed on each side," says our contemporary the *Sheffield Times*, "surely it would not be difficult to arrive at a just decision." This unhappy town requires a grand committee of all hands, masters and men, to turn over the new leaf which all there seem to have stood so long in need of turning.

#### SIGHTS AND SCENERY.

*Panorama of Constantinople and the Dardanelles.*—The Exhibition Theatre, adjoining the Polytechnic Institution in Regent-street, has been re-arranged to receive a panorama of Constantinople, the Bosphorus, and Dardanelles, by Mr. Thomas Allom, a country at this moment an object of considerable attention. It is scarcely necessary to say to our readers who know Mr. Allom as an architect, that he has excelled most in the delineation of the buildings, and that the drawing of the panorama is superior to the colouring. The figures and landscape in parts seem to have been hurried, and we should suggest to the artist, now the work is done, to go over some of these portions again, so as to make all uniformly good. We should recommend, too, shutting out the daylight wholly, and an occasional variation of the artificial light, to increase the effect of particular passages. In the second part of this panorama, the Street of Tombs, the Mosque of Eyoub, the Bath, the Subterranean Palace, the Fountain of the Seraglio, St. Sophia, &c. are especially interesting and beautiful. The fidelity of the painting has been attested by those who know well the route, and we sincerely hope that the pains and ability of the artist will be acknowledged and rewarded by the public. Such works are of the greatest value in an educational point of view; the pleasant and ready means of getting knowledge which they offer should be taken advantage of by all.

*The Vanbrugh Club.*—We mentioned the doings of this club of young architect-actors last season with commendation and a well-meant caution. On the 18th inst. they played very ably "The School for Scandal" and "Charles XII." They know too well what they are about to suppose it was—

"From such deep rudiments as these  
Van is become, by due degrees,  
For building famed, and justly reckoned  
At court Vitruvius the Second."

The rogues have cleverly got the professor of architecture at the academy on their side, by quoting on their play-bill his remark that "when the drama has flourished, so have the sister fine arts, especially architecture." "Argals," perhaps they say, "if we aid the drama we help architecture."

*Vauxhall Gardens.*—Amongst the novelties with which the proprietor of this ancient place of *délassement* for the Londoners is spiritedly seek-

ing to maintain the popularity they have once more acquired, is a new balloon, aspiring to the credit of having a will of its own. It is of an oblong shape, placed horizontally, and contains comparatively little gas. The car is furnished with an apparatus for working two large fans and a rudder, to enable it, according to the statement of its owner, Mr. Bell (evidently the reverse of a diving-Bell), to take the course that pleased it best, in spite of the wind. The wind, on trial, however, was not disposed to give in, and walked away with fans and rudder. We have often expressed a conviction, and still entertain it, that to navigate the air in opposition to the prevailing wind, the balloon must ascend by power, not levity. The decomposition of water in America, as reported, may involve the production of the power needed.

#### REPAIR OF ST. STEPHEN'S, WALBROOK.

As the parishioners of St. Stephen's, Walbrook, are about having their church repaired, I am induced to suggest that the building should undergo a thorough repair, and that they should not limit the outlay to the 1,000*l.* which has been voted to the repairs, for I hear a whispering, that comes from practical men who have examined the building, to the effect that it really requires double that amount to effectually and permanently complete the repairs. It is proposed, in the present instance, if I am correctly informed, and I think it is pretty near the mark, that the exterior is to have but a "lick and a promise." Surely this is wrong in such a building as the one under consideration, with its dome of difficult access, as regards the interior; and the fewer times scaffolding has to be raised there, so much the more will it suit the majority of parishioners, I guess. I wonder who would dream of beautifying the interior of any building for a year or two, and leave it liable to serious derangement by the roof undergoing a repair. Our building is superior to most parish churches; let us not fall into disgrace, not only with immediate neighbours but foreigners of architectural taste, all of whom visit the noble edifice, it being a model of its class; but let us take it up as a national monument of architecture, which is certainly is, and have it thoroughly restored and beautified.

The procedure of obtaining specifications and contracts is a curious one: the advertisement for surveyors' specifications is to include builder's tender therewith, but the advertisement contains no such information. The builder to have his own private surveyor to examine and direct his works, seems a somewhat novel mode in these days, and suggests doubts as to the wisdom of those concerned in the direction of the repairs.

A PARISHIONER.

#### RAILWAY JOTTINGS.

THE Ambergate line from Nottingham to Grantham was opened for passenger traffic on Monday in last week. It runs up the Midland line as far as Colwick, when it branches off to the right, and stretches through Ratcliffe, Bingham, Aslockton, Elton, Bottesford, and Sedgbrook, to Grantham. A viaduct crossing the lowlands near Ratcliffe, and a bridge crossing the Trent, are considerable works on the line. The contractors were Messrs. Wilson. A branch line is about to be formed by the Eastern Counties Company from Shelford to Shepreth. The company, we perceive, has taken a hint from the Building Committee of the International Exhibition, by charging five guineas each set for lithographed copies of the plans and specifications of the proposed works. The works on the Buckinghamshire line from Islip to Oxford (six miles) are shortly to be executed, as are those also of the Taw Vale line from Umlerleigh-bridge to Crediton, about twenty-six miles in length. The directors of this railway mean to work the line from Penthill to Crediton (thirty-six miles) by contract. Mr. Brassey, it is said, has contracted to construct the Shrewsbury and Hereford line, with all necessary works complete, for 345,822*l.*, including the electric telegraph. Mr. Brassey takes shares to the amount of 50,000*l.* The third tube at the Britannia-bridge is now permanently fixed. The arrangements for floating the fourth and last tube have been completed, and Mr. Stephenson is expected immediately to superintend the operation, which will take place on the 25th. The number of persons employed directly and indirectly by railway companies, says a con-

temporary, is about 43,000, and the quantity of land occupied by upwards of 4,000 miles of railway and stations in, say 50,000 acres. The whole of the local rates paid by railways amounts to above 340,000*l.* or 350,000*l.*, of which nearly 300,000*l.* is the produce of the rate upon the lines of railway (viz. about 40,000 acres), altogether exclusive of the stations and buildings. A model of a new railway gate has been exhibited at the Mechanics' Institution, Lincoln, by Mr. Carver, of that city. It is said to possess the peculiar advantage of enabling eight gates to be opened by a single movement, and closed by a reverse movement. The idea seems very much like one long since suggested in *The Builder*. "Nearly all the great roads of France," says another contemporary, "are to be bordered by trees, by a late order of the Ministry. If the slopes on the English railways were planted with beech, lilac, mountain-ash, guelder-rose, acacia, and other ornamental trees of moderate growth, it would much relieve the monotony of railway travelling."—*BUILDER* again. Among the American novelties is a contrivance by Mr. Cunningham, of Reading, Pennsylvania, to get rid of the dust which accompanies railway travelling. By means of a fan at the top of the carriage, worked by strap from the axletrees, a continued succession of jets of air is thrown through a slit across the carriage windows. As the valves can be connected or disconnected at pleasure, the currents of air are under complete control. Six to eight carriages may be connected by flexible hose with such an apparatus, and the whole fitted up, it is said, for about 25 dollars. Besides arresting dust, the temperature of the carriages in summer might also be comfortably cooled and regulated through invisible sheet-air windows, such as these. We would recommend them to the special notice of the East-India Company, who, by the way, as appears from a Parliamentary return just issued, have been forwarding specific instructions to Calcutta and Bombay regarding the construction of the East Indian and Great Indian Peninsular lines. In these instructions, given in the form of a running commentary on the contracts entered into, the directors decide on having double lines at once, except on branches. As to the stations and offices to be erected, the despatch expressly insists upon the extravagance practised in England being shunned. It appears also from these documents that instructions were forwarded to India in May last, that so soon as Mr. Simms, the Government engineer, shall have completed his duties in Bombay, he is to proceed to Madras, for the purpose of conducting a survey in that presidency.

#### MEMS. PROVINCIAL.

THE Freemasons' Asylum at Croydon Common is to be consecrated on 1st proximo. Plans are about to be decided on for draining the town of Epsom and supplying it with good water. The parish church of Luton, Bedfordshire, is about to be provided with gas-fittings. The Reading Cattle Market Company are shortly to decide on plans for the arrangement and erection of a cattle market-place at Reading. About 500 tons of stone are now being deposited daily by 800 convicts at Portland Breakwater. The piles are injected with creosote under pressure for preservation. The members of the Gloucester Archaeological Association on Tuesday week visited the village of Bredon, its old church and camp, &c.—On a recent visit of the Duke of Bedford to the national schools at Tavistock, sixty-four of the tenants of the new cottages erected at Westbridge sent a deputation to his grace, with an address of thanks and gratitude for the boon conferred on them in the possession of such cottages, at rents so low as those charged. These tenants, it appears, with families amounting to 381 persons, had previously occupied about 106 rooms, or, on the average, one and three-quarters to each family, at 3*l.* 17*s.* 6*d.* a year of rent; whereas they now possess 320 rooms, or five to each family, with yards, pighouses, gardens, &c., and good drainage, ventilation, and water, at 3*l.* 18*s.* a year each

\* Creosote, or spirit of tar, is now believed to be the preserver of the human tissues mummified by the Ancient Egyptians as well as by the modern American Indians.



family.—A powder magazine establishment with four large magazines, tanks, drainage, &c. are about to be formed near Devonport for the ordnance, on plans prepared at the local office of Royal Engineers.—On Thursday week the chief stone of an enlarged building for the Plymouth Mechanics' Institute was laid on the site of the original building, which was erected in 1827 for 300 members, increased latterly to 800. Part of the south front is to be incorporated with the new building. A bottle containing a scroll of particulars was found in razing the old building. When exposed to the sun it suddenly exploded—the bottle, not the scroll—which latter recorded the names of Mr. John Foulston as the architect, and Mr. W. Burgoine, the builder. A new bottle with scroll recording the names of Messrs. Wightwick and Damant as the architects, and Mr. T. Marshall as the builder of the new institute, and accompanied by the old scroll, was placed in the new foundation.—Efforts are being made to erect national schools in Limekiln-lane, Trannmere. Land has been presented by the lord of the manor, and plans by Mr. Barry.—It is intended very shortly to make a survey and valuation of the rateable property of the parish of Birmingham.—A monument has just been erected in St. John's church, Manchester, with a shilling subscription, in memory of William Marsden, who presided over the committee which obtained for Manchester, in 1843, the Saturday half-holiday. The design was by Messrs. Travis and Mangnall, architects, executed by Mr. John Mowbray, jun. of Chestwood, and is in the Gothic style, divided into three niches, in its width, filled with sculpture in high relief, those on either side intended to represent mental and physical improvement,—the chief objects for which the half-holiday was obtained. The monument is in stone from Caen.—A new beam engine of 150 horse power has been erected at the Hull Waterworks. The cylinder is 75 inches in diameter, stroke 10 feet; length of beam, 34 feet 8½ inches. Each stroke raises 315½ gallons of water; quantity per minute, 2,841½ gallons, or 2,046,060 gallons in twenty-four hours. There are nearly 300 tons of iron in the engine.—The decorative renovation of Holyrood Palace for the anticipated visit of her Majesty and the Prince to Edinburgh in the autumn is nearly completed. The project for a statue in the quadrangle is in successful progress, and the work is to be entrusted to Mr. H. Ritchie, sculptor.—The citizens of Edinburgh are endeavouring to enable Mr. Park to execute his colossal statue of Sir William Wallace. On Thursday in last week a preliminary meeting was held in the Royal Hotel, to promote measures to have a cast made from it. The work has been in progress for some time, and is ultimately intended to serve as a model for a group commemorative of one whom popular legend has long regarded as the "deliverer of Scotland." The Lord Provost presided. Mr. Sheriff Gordon proposed a resolution in favour of a subscription for enabling the model to be completed, and a cast in plaster made, to be then exhibited, to enable the public to judge whether it should be erected in a more permanent form. The resolution was cordially adopted, and about 70*l.* subscribed, including handsome contributions from the Duke of Buccleuch, the Marquis of Breadalbane, the Lord Provost, the Solicitor-General, Mr. Sheriff Gordon, Professor Wilson, and various others.

#### DECAY OF ENCAUSTIC TILES.

HAVING several encaustic tiles to spare from the paving of the chancel of my church, I accidentally piled them upon one another and placed them in the middle of the floor of a newly built room in my house, which was plastered all round. The windows of the room were open all day to admit the sun and air to dry the plaster, but were closed at night. The tiles remained unnoticed in the room about three weeks. At the end of that time, when the tiles were about to be removed elsewhere, it was discovered that those which were of a blue coloured pattern were shivered into many pieces, while the plain red and buff coloured pattern ones were uninjured. Were the broken tiles affected by any influence of the hot line on the walls of the room, or the hot steam from the walls when the windows of the room were closed at night? I cannot account for the circumstance otherwise, as the blue

tiles have now been laid down nearly four years in my church, and all are still perfectly sound.

GEORGE BURMESTER.

We cannot account for the circumstance mentioned. An encaustic tile properly made and fired, could not be affected in such a manner by any ordinary agency, atmospheric or chemical. In order to test the suggestion we caused several blue and buff tiles to be immersed in a covered pail with a quantity of flue lime through the whole process of slaking, and then plunged into cold water, but we need hardly say without the slightest effect. If we had one of the tiles not broken, the circumstance could probably be explained.

#### BOOKS.

*Specification and Estimate, with Plans, Sections, &c., of a Pair of Cottages for Labourers, &c., by Mr. H. GODDARD, Architect, for which the Royal Agricultural Society awarded first prize.* London: Messrs. Dean. Messrs. Dean have published the plans, &c. of this design, uniform with the designs by Mr. Hine, and Mr. S. J. Nichol, (previously published by them), to which the Society of Arts awarded prizes in 1848. The cost of the pair of cottages is set forth at 200*l.* 17*s.* 11*d.* and the offices 34*l.* 15*s.* The plan does not present any peculiarities.

*The Family Friend*, vol. 2. London: Houlston and Stoneham, Paternoster-row.

Few perhaps of the little volumes made up by periodical instalments possess more varied and improving matter of interest to the young, and even to the old, than the one just handed us for review,—namely, the 2nd vol. of the "Family Friend," now issued. This little journal forms a neat and handy volume, well got up in all respects. The circulation, it appears, has increased from 50,000 monthly at the close of the first volume, to 75,000 fortnightly, at the present time. Nearly all it contains is copyright matter, of which, including numerous woodcuts, we have 380 pages for half-a-crown. It comprises mechanics, cookery, gardening, poetry, music, statistics, pastime, tales, needle-work, receipts, and a host of other subjects, with an appendix of useful and curious matter.

In turning over the leaves of this little work we may incidentally remark that we have stumbled on a brief note, which we may here quote, both as a small specimen of its own style and as an accidental and pleasing coincidence with the subject of a note of our own some weeks ago on the decomposition of water and oxygen. "Although these bodies (the 'elements') have hitherto resisted all attempts at decomposition, it is highly probable that many of them will be proved to be compounds; indeed, it is possible that all matter may be composed of one material or ultimate atom, the varied position or electrical condition of which produces the variety of form and nature which we perceive in the bodies we now term 'simple bodies' or elements. Sir Isaac Newton entertained this idea, and many distinguished men have expressed a similar opinion. If this discovery were made, the dreams of the alchemists would be practicable, as the transmutation of metals is but the disintegration and rearrangement of atomic particles. For some interesting speculations on this subject, we refer our readers to 'MacVicar's Elements of Nature.'" It will probably be found that not only the electrical force, but the magnetic also is at work in the composition of both oxygen and water, and that hence the *diamagnetic force*, no less than the actinic, or at least the electro-negative, must be brought into play in their demolecularization, or decomposition. Practical chemists, interested in the reported though still doubtful discovery of Mr. Paine, we may further refer to "Graham's Chemistry," and to our own remarks,\* on the probable esoteric constitution of such "elements" as the metals.

*NEW LAUNDRY, &c., ST. PANCRAS PARISH.*—The vestry of St. Pancras have determined to erect a new laundry and kitchen at the back of the workhouse,—cost about 2,000*l.* Mr. Lockyer architect. The industrial training school for this parish is nearly completed.

\* Vide, on Metals in a previous volume.

#### MISCELLANEA.

**SOCIETY OF ARTS.**—The annual distribution of prizes took place on the 22nd instant. Lord Colborne in the chair. The secretary read the council's address, from which it appeared that 250 members had joined the society since the last report. A sum of 7,288*l.* odd had been contributed to the International Exhibition of Industry, by members. A special prize list for 1851 was then announced, and the prizes for the present year were awarded by the chairman. The list alluded to relates to treatises on the international exhibition and its several sections.

**SCOTTISH FINE-ART ASSOCIATION.**—The annual general meeting of the Royal Association, at Edinburgh, for distribution of works of Art, and other purposes, was held on Saturday last in the Music Hall, George's-street, the Lord Provost in the chair; when the secretary, Mr. J. A. Bell, read the report of the committee of management, from which it appears that the amount of subscriptions for the year is 3,450*l.*, of which 1,258*l.* have been expended on painting, 405*l.* on sculpture, and 775*l.* on engravings. Resolutions were passed, and the prizes drawn by ballot as usual.

**WESTMINSTER.**—The Wesleyan Norman schools in the Horseferry-road are making rapid progress, and will startle by their size and extent those who see them for the first time. They are of Bath stone and brick, of the Perpendicular period, and are being built by Messrs. Curtis, under the direction of Mr. Wilson, at a cost (we are told) of about 20,000*l.* An octagon lantern over the entrance to second quadrangle may be seen at some distance around.—The church in St. Anne-street is getting fast on towards completion: it has a very large east window.—The public baths and washhouses are being built close by.

**THE WANT OF A COMMON CENTRE IN LONDON FOR MEASURING DISTANCES.**—No defect in our improved modern metropolis is more inconvenient than the want of some particular point from which the various roads should be measured. At the present time there are no less than ten or eleven different places from which distances are calculated, and all of them very wide apart. The catalogue runs thus:—Hyde-park-corner and Whitechapel Church, the Surrey side of London-bridge and of Westminster-bridge, Shore-ditch Church, Tyburn-turnpike, Holborn-bars (long since removed), "the place where Saint Giles's Pound formerly stood," and "where Hick's-hall formerly stood," "the Standard in Cornhill" (of which the exact site is unknown), and "the Stones' End in the Borough," which moves with the extension of the pavement. Thus the exact distance of any place cannot be known without minute inquiry and a local knowledge of London. One remedy would be in adopting the mileage from the Post-office, the frontage of which could not be more appropriately adorned than by an obelisk, which would become a "London stone," inscribed with the names and the distances of large provincial towns, similar to that which stood in the Forum of ancient Rome. The vicinity likewise of St. Paul's Cathedral, one of the most conspicuous buildings in London, recommends the Post-office especially for this object, and the turnpike-road trustees would not refuse to accommodate their milestones to it, under the direction of the Post-office surveyor.

G. J. R.

**WIDE ESTIMATES.**—I beg to forward you a list of tenders delivered for building two houses in Bonner's-fields, Hackney.

Boyson and Walsham.....	£900	0	0
Whelan.....	896	0	0
Bugg.....	867	0	0
Gerry.....	819	0	0
T. Smith.....	775	15	6
Pittman.....	765	0	0
Simmons.....	750	0	0
Rudkin.....	750	0	0
Smith.....	740	0	0
Pibeam.....	720	0	0
Cooper.....	717	0	0
Taylor.....	705	0	0
Loynes.....	698	12	0
Walker and Soper.....	698	0	0
Hill and Soa.....	665	0	0
Cooper and Bottomley.....	625	0	0

Any comment on the above would be useless.  
—A COMPETITOR.



**STRAIGHTENING A CHIMNEY.**—A large chimney at Thornes has long been overhanging the centre of its base, from four to five feet, and ere long this huge mass of 200 tons of brickwork would, in all probability, have fallen. To prevent this, Mr. Green, engineer, of Wakefield, was engaged to bring it back to a perpendicular position. The workmen commenced, under his directions, to cut out about four-fifths of one course of bricks near the bottom of the chimney, taking care to fill the cavity thus made with a mixture of new lime and earth gradually yielded to the immense pressure, and were removed, so that in three hours the open space of nearly four inches, which had been made as above described, closed. The chimney had lowered on one side nearly four inches, and gone over at the top more than four feet to a perpendicular position. —*Wakefield Journal.*

**GREAT FIRES.**—Another fire broke out on the 4th of May, at San Francisco, on the spot where that in December originated, and houses and property which cost 4,000,000 dollars were destroyed. The fire is said to have been the work of an incendiary,—an emigrant from Sydney. In ten days everything was proceeding as if nothing had occurred. In one place the frame of a new gambling-house was prepared and laid as soon as the flames had consumed the old and a space could be cleared on the hot foundation, where, accordingly, another "Hell" was erected, and by night "drove a good business," as usual. The buildings were all of wood. The news of this fire had scarcely reached us, when it was followed by accounts of another at Philadelphia, in which it is reported that at least 400 houses, valued at 1,000,000 dollars, were destroyed, and the flames still raging with unabated fury. In both of these fires lives have been lost, but especially in the latter, where several explosions increased the mischief. From another quarter we have no less startling intelligence. A telegraphic message from Berlin announces that a dreadful fire broke out on the 18th at Cracow, which laid waste a great part of the city, and consumed the archbishop's palace, besides other public buildings. The arrival of a vessel at Hull almost simultaneously brings news from St. Petersburg of a tremendous fire which had broken out in the neighbourhood of the warehouses on the river there on 16th inst. Owing to a strong wind there was every probability, it is said, that the conflagration would extend.

**GAS APPARATUS.**—In your notice to correspondents I find you have applications to know how to construct an apparatus for making gas for domestic use. In answer I beg to state that I have an apparatus for lighting my own premises, constructed on a very small scale, consisting of furnace, retort, vessel for purifying, and gasometer, the whole occupying a space of only 5 feet square. The material used for making gas is the refuse of the kitchen, such as grease or fat of any description, it matters not how dirty, as the whole is burnt off in the retort: it produces a brilliant white light far surpassing any gas made from coal. I have had it constantly in use for eighteen months, and no bad results have occurred, although it is in a thickly-populated neighbourhood. The apparatus is not at all expensive; it consists of only three vessels, and can be adapted to any number of burners. Sufficient gas can be made in one hour to supply one burner for a sitting-room for twelve hours at a cost of about threepence halfpenny. It may be seen in operation at 34, Howard's-green, City-road.—R. H. T.

**EXHIBITION BY BOOKBINDERS' FINISHERS' ASSOCIATION.**—The third annual exhibition of designs in the biblical branch of decorative art took place on Monday and Tuesday last in Museum-street, when a still more varied and interesting collection of designs than even heretofore were presented to view. These ranged from the ancient and monastic to the most recent novelty in this elegant branch of art. Amongst them, too, were a selection of rich and curious Hindu, Persian, Chinese, and other Oriental book boards; and altogether the exhibition was a very interesting

one, which proved—full measure of justice being done to the ancients—that these tasteful and varied book decorators have not managed to steal all the merit and the novelty away from their modern brethren. Besides rubbings of many tasteful and ingenious designs by living and other modern finishers, a piece of fancy workmanship by an apprentice of six years' standing really merits special notice. This consisted of a table clock case, richly ornamented with not a little of the talent and fancy as well as the enthusiasm of youth. Amongst the more ancient designs we perceived a copy of one from Stowe, given in our pages in February of last year, together with a quotation from *THE BUILDER* itself attached to it.

**FALL OF A CONE AT GATESHEAD.**—An inquest has been held on the bodies of two men killed at Mr. Price's glass-works, by the fall of one of the cones. The jury, however, could not decide as to the cause of the fall of the cone, which was built in 1837, and altered about four years since, when 35 feet out of 55 feet were taken down and carried up again perpendicular and 9 inches thick. Two fans were fitted in 12 or 14 feet above the furnace by way of experiment, to move the machinery of the works by the power of the draught of air up the chimney cone, which it did, but too slowly. No evidence, however, was given to show that either the fans or the alterations could have weakened the cone, the opinions given being, on the contrary, that they could not have done so. The evidence, however, was not so unanimous as to the insertion of a new furnace of fire-brick lumps, which was alleged, by one witness, to have been fitted in without sufficient room for expansion. Cones also are apt to crack when new furnaces are put in.

**PAPERING ON DAMP WALLS AND CURE OF DAMP.**—A patent, it is said, has been taken out for a fluid containing chiefly indiarubber and gutta percha (dissolved, we presume, in turpentine or naphtha, with, it may be, a little boiled oil), for brushing into damp walls as a preparative to papering or painting. It dries into a waterproof film in a couple of days, and will then take on either oil paint or paste for paper. It may also be brushed on the papers themselves, and form waterproof papers. In painting new wood-work, according to the *Patent Journal*, this preparation prevents subsequent shrinking, swelling, or cracking, and obviates the necessity of priming for knots, when used as a first coat, or mixed with paint. We should think one of its most important uses, however, if it adheres properly to the wall without blistering or bursting in warm rooms, would be the suppression of damp itself in walls and floors, without any special reference to the papering or painting of such surfaces. The substance may be one that will sink into porous walls, where, having a good hold, and being tenacious, (with the unelastic gutta percha in particular), it may be able to suppress any tendency of the damp to escape into warmed apartments.

**BRITISH ARCHEOLOGICAL ASSOCIATION.**—On the 10th, Mr. Pettigrew, V.P., in the chair, exhibitions were contributed, by Mr. Lindsay, of Cork, of a drawing of a small crucifix of silver, originally gilt, and apparently as early as the thirteenth century; by Mrs. Graham, of Chichester, the impression of a coin of Allectus, found between the lead lining and stone of the font of West Wittering Church; by Mr. Elliott, a Flemish earthen jug of the sixteenth century, found on the shore at Dymchurch, Kent, having on its surface a series of subjects in relief, with inscriptions in Dutch; by Mr. Baigent, a series of coloured drawings of paintings, found in Welow Church, Hants, consisting of two crowned heads from the spandrels, and scrolls round the jambs of the windows, of the thirteenth century; also a drawing of a tile, now in the library of Winchester Cathedral, of about the same date, representing an archbishop, and a drawing of a coin, found in the garden of the Benedictine Convent at Winchester, and many interesting seals, by Mr. Chalmers. Mr. J. Moore and Dr. Pettigrew commented on bones found at Hamhill, Yeovil. Mr. C. Baily read an account of Roman and other antiquities found during the excavations for the foundations of a house in Mincing-lane. In this place

Roman buildings of two periods were distinctly traced, the floors of each remaining, and between them were discovered the base and capital of a column, a Purbeck marble mortar, fragments of Samian ware, &c.; and many varieties of mediæval pottery, &c., were found in the ground above. The meetings were then adjourned to the congress meeting, which will commence, at Manchester, on August 19th.

**BUILDING FOR EXHIBITION OF 1851.**—It is possible that the Royal Commissioners have really thrown the whole 245 plans to the winds, their own bantling, and the seventeen contractors' into the bargain, and sanctioned the erection of a hothouse to hold the proposed exhibition? It seems almost incredible that any body of men in their natural senses could expect manufacturers to expose their costly productions in an immense hothouse, where they would be liable to rapid deterioration, if not to total destruction, by the leakage and condensation inseparable from glass roofs, to say nothing of the dust from the roads through the open luffer boarding of every third compartment, and a scientifically moistened atmosphere produced by the ventilating currents being made to pass through "coarse canvass," which is to be "kept wet in hot weather" to "render the interior of the building much cooler than the external atmosphere." Exhibitors of bright metal-work will regard this proposal with unfeigned astonishment. The internal atmosphere of the building is to be specially moistened by the evaporation of water from ventilating blinds of wet canvas, as though the moisture of our English climate were not sufficient to combat against in preserving unoxidized their wares.—T.

**BRISTOL.**—The restoration of St. John's Church (the tower of which is over the north gateway of the city), is being proceeded with. Messrs. Marmont and Lloyd are the architects.

—The recent fire near St. James's Church affords an opportunity to open to view the very interesting west end of that church. It is of the Norman period, and has a circular window of very curious design. It is much to be desired that this opportunity will not be lost.—The first stone of the High-cross, proposed to be erected on College-green, is to be laid in the beginning of next month. The stone to be employed, we are told, is from Nailsworth, in the county of Gloucester.—On Monday week the foundation-stone of a new British day school was laid in St. George's parish, Gloucestershire (Bristol). It is to be of stone, with school 62 feet by 32 feet, for 200 to 300 scholars: estimated cost about 600*l*. Mr. Crisp is the architect, and Mr. Lee, of Bristol, the builder.

**GLAZED IRONWARE.**—A report to the French Society of Arts speaks favourably of the vitreous glaze adopted by M. Paris in place of tin, zinc, or lead, on the surface of ironwares. It prevents oxidation, and withstands acids, though not alkalis. In domestic use it prevents food from being tainted with the metallic taste. Sheet iron chimneys are recommended to be thus glazed, especially those of laboratories and manufactories liable to oxidation.

**ANOTHER LONDON MONUMENT TO SIR ROBERT PEEL.**—On Tuesday last a public meeting was held in Willis's Rooms to promote the erection of some lasting monument at the west-end of the metropolis in honour of the late Sir Robert Peel. The Earl of Aberdeen presided; and the meeting was addressed by the Duke of Wellington, Lord Ashley, Lord Hardinge, and other noblemen and gentlemen. Appropriate resolutions were passed, and a subscription was opened with sums amounting to upwards of 1,600*l*.

**MR. FRANCIS WHISHAW** announces "An Evening" (August 2nd.), to be devoted to "Illustrated Passages in the Life of an Engineer during the last Thirty Years." We regret to learn, from the terms of the announcement, that Mr. Whishaw's success in life has not been such as his efforts might have been expected to ensure.

## TENDERS

For building malting, granary, and maltster's house for A. H. C. Wells, East Dereham, Norfolk, Mr. T. Bray, architect:—

Mundford and Cushing.....	£1135	0	0
Greenhill.....	1080	0	0
Hubbard (accepted).....	1025	10	0











# The Builder.

No. CCCXCI.

SATURDAY, AUGUST 3, 1850.

**M**ESSRS. J. B. Waring and T. R. Macquoid have just now issued a volume entitled, "Examples of Architectural Art in Italy and Spain, chiefly of the 13th and 16th Centuries," which eminently deserves the support of the profession. It is a large volume, "Columbier folio;" consists of 64 plates, in lithography, partly elevations and details in outline very clearly drawn, and partly picturesque views of structures; and is dedicated to the President, Council, and Fellows of the Institute of British Architects. It is not merely a pretty work, and a pleasant work to turn over, but a practically useful work, presenting a mass of data, models to work upon, and materials for re-combination. It is to be regretted that the volume contains no letter-press. The only descriptive matter given is on a loose sheet of four pages, called a prospectus; an arrangement, we venture to guess, made to escape the unjust tax imposed on authors by the requirement of a certain number of copies for public collections,—a tax which, of course, presses peculiarly hard on the producers of costly illustrated works; every copy of which entails a large expenditure on the author. It is most desirable that there should be public collections, where every work issued should be found; but it is manifestly unjust that the cost of supplying these should fall wholly on the producers, who ought to be aided instead of oppressed. It is quite time that this unjust and injurious law should be abrogated.

The plates in Messrs. Waring and Macquoid's work follow under the heads Romanesque, Florentine, Cinque-Cento, Italian, and Spanish Renaissance. They say, in their prospectus, that "they cannot help looking on the Cinque-Cento, Renaissance, Elizabethan, Norman, and Romanesque" (there is a little confusion here), "as various stages of development of one style, suited to peculiar subjects, influenced by the requirements of the times when they arose, and containing a generic similitude." With respect to the possible invention of a new style they say, "if such a reward does attend the activity and creative powers of the century, it seems pretty certain that the semicircular arch will be its constructive and characteristic feature; and a more noble foundation art never rested on: perfect in its form, calm, powerful, continuous, it is certainly suited to give grandeur to any system which may be raised on it. However this may be, considering the constant use of the arch at the present day, its ornamentation has been strangely neglected, and we have therefore sought for the best examples of its ornamental construction in Romanesque and Cinque-Cento, where it forms an important feature."

Many of these examples from Pisa, Lucca, &c. are very interesting and suggestive. The choir of the Cathedral of Moura contains some good sculpture, and affords them subjects. The porch of the Cathedral of Lucca shows the importance of providing for light and shade in designs. With-

out arrangements to obtain these, the finest work is thrown away,—with them, the roughest work may be overlooked. The Town Hall of Piacenza deserves notice on account of its curious terra-cotta windows. The view given is not so good a drawing as some of them; and we may observe generally that the picturesque views, although very effective, are somewhat coarsely executed.

Amongst the examples of Florentine palaces are measured elevations of the Palazzo Ricardi and Palazzo Strozzi. Iron and bronze works from the same neighbourhood are not forgotten. The mouldings of the Florentine buildings are peculiar and deserve study.

Amongst the Cinque-Cento buildings is the Palazzo Manzoni, Venice, with much elegance and many defects. There are views of the Giant's Staircase at the Ducal Palace, Venice, (good), and the Palazzo Vendramin. Of Venetian details there is a good collection.

The marble lavatory in the Certosa, at Pavia (circa 1490) is for the most part nicely drawn. It is of plain white marble, with serpentine inlay, and is a miracle of delicate workmanship. The relief here, as well as other of the monuments shown, is very low, and requires a stronger light than we usually have in England. The cloisters of the Certosa furnish some elaborately sculptured architraves.

For drawing part of St. Mark's Library, Venice (type of the Carlton Club), they had the advantage of a scaffolding: the cornice is given to a large scale.

We pass on to what will be considered by many the most novel and interesting part of the work—the illustrations of Spanish Renaissance, —the Town Hall, Seville; the Hospital de la Cruz, Toledo (1514); Casa Miranda, Burgos; Collegio de las Virgenes, Zaragoza; the Town Hall of Zaragoza; the Caza Zaporta, of same city, and others.

We should mention that "of the Spanish Renaissance, or Plateresco, as it is termed, exuberance of ornament, and variety of design, are the chief characteristics. It possesses more merit in its sculpture than in its architecture, and holds a place between the Renaissance of France and the Elizabethan of England. The arabesques are remarkable for their invention and grotesqueness, the preponderating use of figures, human and inhuman, birds, dragons, beasts, and nondescripts, all excellently worked out. Fancy supersedes beauty, and often with effect; distorted pediments, an immense quantity of sculpture, bed-post columns, and a great admixture of Gothic models, are its usual and worst features, forming a whole which, however it may please the eye and the imagination, is straggling, rough, unrefined, and offensive to an educated sense of beauty: it lacks the grace and compactness of Italian cinque cento; and contesting with Gothic and Moorish in its richness and effects, falls far short of both in artistic merit. It is, however, not the less valuable on this account for its suggestive qualities, and well adapted for interiors, where the fancy is allowed a wider scope in the use of ornament." Of the buildings which preceded this style in Spain there are still many fine remains. Moorish architecture will be found in Seville, Granada, and Cordova, and Gothic buildings will be found throughout the country. We think that our authors, in the above remarks, are scarcely just to the Renaissance of Spain. "This style," says Mr. Ford, in his admirable "Handbook for Travellers in Spain," "was exalted

to its highest grade by a glorious host of Spanish artists, who rivalled in marble and metal the Bramantes and Cellinis of Italy; from its delicate details, wrought like a finely chiselled piece of plate, this style is called in Spain *el Plateresco*, and also *de Berruguete*, from the name of the great architect, sculptor, and painter, who carried it out to its full perfection, and whose exquisite works are deserving of the closest study."

Under Philip II. the Plateresque architecture declined, and the more strictly classical was introduced, generally known in Spain as that of *Herrera*, from being adopted by Juan de Herrera, who completed the Escorial in 1584, a building "extremely magnificent, of fame and glory throughout all countries."

It will be useful to know some of the leading terms as regards the cathedrals of Spain; and we glean the following from Mr. Ford's book, already mentioned:—The exteriors are often surrounded with a platform or *lonja*, which, if ascended by steps, is called a *gradus*, "grees;" the principal front is frequently left unfinished,—first, in order to disarm the evil eye; and next, to serve as a constant pretext for begging contributions for its completion. The western entrance commonly presents the chief façade, and is called *fachada principal*; the naves, *naves*, are supported by piers, *pilones*, from whence springs the roof, *boveda*. The side aisles, *alas*, wings, are called *laterales*, *colaterales*; at the entrance is a small *pila*, stoup, or *bénitier*, which contains the *agua bendita*, or holy water, with which every Spaniard crosses him or herself on entrance, *santiguarse*. The quire, *coro*, is ordinarily placed in the centre nave, thus blocking it up and concealing the high altar; its back, which fronts the spectator who enters from the west, is called *el trascoro*; the lateral sides, *los respaldos del coro*, and over these the organs are usually placed. The quire is lined with stalls, *sillas*; the seats, *silleria del coro*, are generally carved, and often most beautifully, as are the desks of the quierist's books, *los atriles*, and the lecterns or *facistolos*.

Opposite to the *coro* is an open space, which marks the centre of the transept, *crucero*, and over which is the great dome, *el cimborio*. This space is called the "*entre los dos coros*," and divides the quire from the high altar. This, again, is usually isolated and fenced off by a *reja*, "purclose," or railing, the *cancelli*, gratings, whence comes our term chancel. These *rejas* are among the most remarkable and artistic peculiarities of Spain, and, from being made of iron, have escaped the melting-pot. The pulpits, *pulpitos*, *ambones*, generally two in number, are placed in the angle outside the chancel: they are fixed N.W. and S.W., in order that the preacher may face the congregation, who look towards the high altar, without his turning his back to it. Ascending usually by steps is the *capilla mayor*, *el presbiterio*, where is the high altar, *el altar mayor*, on which is placed a tabernacle, *el tabernaculo*, or *ciborio*, under which the consecrated wafer is placed in a *viril*, or open "monstrance," when displayed, or *manifestado*.

At the back of the high altar rises a screen, or *reredos*, called *el retablo*; these often are most magnificent, reared high aloft, and crowned with a "holy rood," *la Santa Cruz*, which is the representation of Christ on the Cross, with St. John and the Virgin at his side. The *retablos* are most elaborately designed, carved, painted, and gilt *estofado*. They are divided into compartments, either by niches

\* Published by Thomas M'Leau, London, 1850.

\* London, John Murray, Albemarle-street.



or intercolumniations; and these spaces are filled with paintings or sculpture, generally representing the life of the Virgin, or of the Saviour, or subjects taken from the Bible, and not unfrequently from the local legends and tutelar: these are the books of those who can see, but cannot read. Spaniards, in designating the right and left of the altar, generally use the terms *lado del Evangelio*, *lado de la Epistola*: the Gospel side, that is the right, looking from the altar; the *Epistle* side, that is the left.

Architecture, after the erection of the Escorial, declined in Spain under the baneful influences of caprice and imitative adornment. Old buildings were disfigured or pulled down to make room for new abominations; and what Charles V. said to a prelate at Cordova in 1523, would have equally applied elsewhere: "You have built here," exclaimed he, "what you, or any one, might have built anywhere else; but you have destroyed what was unique in the world. You have pulled down what was complete, and you have begun what you cannot finish."

#### ON LINEAL EXPRESSION AND ARCHITECTURAL DESIGN.\*

It is presumed that the best points of each character, the grand and the picturesque, may be joined to their mutual advantage, and form a more agreeable novelty. Though bearing less undivided application to our purpose, let us commence with the art of painting, and turn to a great authority, Sir J. Reynolds, who, with one or two strange contradictions to his own words, speaks thus:—

"Such as suppose that the great style might happily be blended with the ornamental; that the simple, grave, and majestic dignity of Raffaele could unite with the glow and bustle of a Paolo or a Tintoret, are entirely mistaken. The principles by which each are attained are so contrary to each other, that they seem, in my opinion, incompatible, and as impossible to exist together as that in the mind the most sublime ideas and the lowest sensuality should at the same time be united."

Instead of "impossible" it would be better to say "disagreeable," for such monstrosities have existed. Of Rubens he says:—

"The whole is so much of a piece, that one can scarce be brought to believe, that if any of the qualities he possessed had been more correct and perfect, his works would have been so complete as they now appear."

Again, of Poussin, in comparison with Rubens:—

"However opposite their characters, in one thing they agreed, both of them always preserving a perfect correspondence between all the parts of their respective manners, inasmuch that it may be doubted, whether any alteration of what is considered as defective in either would not destroy the whole effect."

But, without speaking of what might or might not be, let us turn to cases where this amalgamation has been tried.

Tintoretto professed to join the colouring of Titian and the drawing of M. Angelo: here, one would say, if such an amalgamation to the benefit of each were possible, it would succeed, for the character of the colouring was separated by no very startling grade from the character of the drawing and the man himself who proposed to obtain this end—a true genius. Now, what is the result? Why, that he is honoured, and we delighted, not by his success in joining imitations of both, as he often does most ably, but in so far as his own strong and individual character is marked upon the canvass.

Carlo Maratti, according to Reynolds, "knew and practised all the rules of art, and from a composition of Raffaele, Caracci, and Guido, made up a style, of which the only fault was, that it had no manifest defects and no striking beauties, and that the principles of his composition are never blended together, so as to form one uniform body, original in its kind, or excellent in any view."

Here we have a man of genius, and a man

of comparatively, if not merely, mechanical power, trying this system of the amalgamation of excellences for the production of an equal or superior excellence.

In each case the result is a failure. Further, if the principle were correct, we might justly say, that Rembrandt being the most perfect master of light and shade, let us give him Raffaele's perfection of form, and they would mutually enhance each other's charm; but a moment's thought of cases where this has been attempted, assures us that they do, on the contrary, mutually deteriorate each other. Make up a landscape from the calm beauty of Claude, the massive grandeur of Poussin, and the doty picturesqueness of some of our modern schools, and mutual detriment would assuredly result. Fuseli, in his endeavour to unite grace and grandeur in his women, produces on me at least a most disagreeable impression. Michelangelo never attempted this: it is scarcely too much to say, that his celebrated female figures in "Night" and "Morning" are devoid of all grace or beauty, except that which the necessary form of humanity involves.

As for ornament, he who should wish the minute finishing, or the quantity of ornamental subjects, in most Dutch pieces, or the early Italian school—in the works of a Fra Bartolomeo, a Volterra, or a Reynolds—must be destitute of all perception of fitness.

We cannot bring these three distinct characters together for the production of an equal, or superior character,—they must detract from each other. This is, perhaps, not so evident in painting, because there are so many other adjuncts to attract the attention; but even from these instances I think we are justified in arriving at the conclusion that form, light and shade, and ornament, have each individually the qualities of grandeur, beauty, and picturesqueness, and that when the form is picturesque, the shadow and ornament should be likewise picturesque, and that the same system should be carried out through whatever character, simple or compound, is meant to be expressed; and that to make the form well defined and graceful, the shadow undefined and picturesque, and the ornament massive and grotesque, would be to produce an eccentric, but surely not a good effect.

Now, let us turn to sculpture, and here we must, in mere fairness, make another extract from Reynolds:—"The highest perfection of the human form is not to be found," he says, "in the Hercules, nor the gladiator, nor in the Apollo, but in that form which is taken from all, and which partakes equally of the activity of the gladiator, of the delicacy of the Apollo, and of the muscular strength of the Hercules. For perfect beauty in any species must combine all the characters which are beautiful in that species,—it cannot consist in any one to the exclusion of the rest. No one, therefore, must be predominant, that no one may be deficient."

This idea of a central form, from which all "deviation is deformity," consisting in the combination of distinct qualities or characters, and exhibiting each in perfection, is one of those loose and obstructive fancies, grounded on no reasonable principles nor on any analogous facts, which serve only to puzzle and confuse us. Let us look around, and first let us take the forms of trees. An artist may make an ideal pine tree from many well-selected models, more perfect in its special character than any we have seen; he may do the same with the poplar, the oak, the willow, the yew, but would any one allow or conceive that there is a central form of a tree, more perfect than any existing, gained by blending the respective excellence of each?

If we take animated nature, it may be allowed that an artist might make a lion more noble than any that ever existed—a horse more beautiful—a gazelle more graceful—a goat more picturesque—but could any art make out of these a central perfect and supreme form, expressing their perfect variety in one perfect unity? Would one not produce rather the horrible jumble of a disturbed dream?

It may be urged that I am enlarging the sphere of operation, and altering the meaning of the proposition; but let us take the words as they stand: "Perfect beauty in a species must combine all the characters of that species; it cannot consist of any one to the exclusion of

the rest. No one, therefore, must be predominant, that no one may be deficient." The sphere of my illustration has certainly been enlarged, but the sense and spirit of the reasoning remain the same, viz., that opposite or various qualities must be joined for the formation of actual perfection; for the Hercules, the gladiator, and the Apollo are as much distinct species of one form, man, though it may require a more delicate sense to perceive it, as the European, the Asiatic, and the Negro the same form; the oak, the elm, the aspen, the tree; or the mule, the zebra, and the ass, are of the horse. Their characters are essentially distinct, and yet resolvable into one pervading form. And if it be true, that no perfect beauty can exist which does not include all the characters which are beautiful in a species, then even binding ourselves down to this word beautiful, which is most indefinitely used, is wrong, for surely the Hercules would not be characterised as beautiful,—we must join the Asiatic to the European, the zebra to the horse, and the aspen to the elm, to the improvement of each.

Now, without further simile, it seems clear to me, from the former investigations, that qualities strongly marked and perfect or excellent in themselves when amalgamated, do not aid or improve, but do actually neutralize and even destroy the charm of each. Let us take it in a common-sense view, and is it not a paradox to assert that perfect beauty is not in the Hercules, the gladiator, or the Apollo alone, but in that form which partakes of the muscular strength, of the activity, of the delicacy of each? That which renders them separately so good is the perfect development of each quality singly; and is it not clear that by blending them in the only way Reynolds can mean throughout the whole man, they at once lose those characteristics perfectly developed in their respective forms, and become imperfectly developed in a compound form? All compound qualities are more or less inconsistent, and all single qualities, though made up of an infinite variety of forms, are consistent. The expression of character, and not the expression of beauty only, is what delights us in form as in every thing else; and in so much as any expression is perfect, in so much any admixture of another expression detracts from its superlative and the pleasure it affords us. Moreover, this principle of fusion, which Sir Joshua considers would be the perfection of ideal humanity, has been carried out in varied degrees more gradually and artistically by the Greeks and more coarsely by the Romans, who, in one case, that of combining manly beauty and delicacy or grace, have produced those eminently graceful statues which are to be met with so constantly in the Italian galleries, and are more disagreeable than the representation of a consistent deformity. These assertions of Reynolds are diametrically opposed: the style he speaks of in painting are merely species of characters of that mode of expression; and it seems to me that the two former are founded on fact and observation on truth, whilst the latter is founded on no fact, truth, or reason. The concluding remark especially confutes itself, for where no character is predominant, even though none may be deficient, no character exists: this is inconceivable, and produces on the mind the idea of non-entity. Surely it were not from precedent or example that this is predicated as the perfection of form, for there is no one celebrated work of sculpture or of any other art but what has some predominant character by which we distinguish it. And it is just the predominant character of each statue he has named which distinguishes it as excellent over all its rivals.

Architecture, I think, shows the stubbornness and incongruity of strongly marked qualities more clearly than the other arts, their being less to confuse the ideas with than in sculpture or painting, and it exhibits better the gradual, almost imperceptible, differences by which alone they are made to harmonise, and their antagonism is rendered less palpable. must be premised that as art, like civilisation, admits of no chronologically continuous development, but shows various phases in various and unconnected periods; in filling up and explaining the necessary gradations of a particular class or style of building, we must be prepared to put chronological order out of our minds, as one, for instance, would be forced

\* See page 33; ante.



commence the history of architecture with the comparatively modern remains of Druidical times.

Let us commence, then, with retaining what is beautiful of the Italian, what is grand of the Egyptian, what is picturesque of the Renaissance, and how does the idea of the skillfullest fusion of them affect the mind? Even unite the graceful picturesqueness of Moorish leaf-ornament, and the rough picturesqueness of a Gothic monument, and could any imagination conceive an agreeable combination? In either of these cases would a superior or equal style be educed? or rather, would there not be a hybrid conglomeration, destroying the charm of each? Sicilian and Spanish Saracenic have both been skilfully blended with Norman and Gothic respectively. Yet the architecture thus produced, however its novel effect may charm us, ranks in each case lower than its primary and pure constituents, and is universally allowed to be *theatrical*, in a lowering sense of the word. It is here the same as before; the different qualities of each are deteriorated in combination.

Let us now take an Elizabethan building: here we have much that is allowedly coarse and grotesque; here, might the breeder of styles say, "is a fine opportunity for a cross with the graceful or the beautiful." Let him then put up a Canova in the niche, or replace that grotesque column with its Grecian type, and is he not on the right track to ruin the whole building? It is not prejudice which would fright the admirer of this style, were you to bring the orders of ancient Greece for his use. The building has one distinct quality or character, and his sense of propriety or taste at once tells him that these, though good in themselves, are not good for *his* purpose, but if carried out through the whole building, even retaining the outline, would ruin its charm. We may assert the same as regards two phases of character in the same style. There is a corresponding phase of Italian architecture in Venice, as seen in many parts of the Doge's Palace. I mention Venice more especially, because the Cinque Cento of that city bears more striking features of resemblance to our Elizabethan than the Cinque Cento of Italy generally, having amongst them those many-curved gables so common with us. Now, were you to apply any ordinary string course, niche, moulding, or foliated ornament of the one to the other, they would be mutually out of place; or the character of strong or grotesque picturesqueness in the one, will not amalgamate satisfactorily with the grace, the delicacy, often the weakness of the other.

There is no more difference as regards the expression of form between Grecian, Roman, and Italian architecture, or between Doric, Ionic, and Corinthian, than there is between the expression of form in the Hercules, the gladiator, and the Apollo. Yet who would expect to form a more perfect fourth from the most skilful and artistic combination of the three, blend them as you will; and the many attempts of this nature by various celebrated modern architects, however satisfactory in themselves, all point out the futility of hoping to excel or equal the excellence of each, as they are known to us in their separate characters. It would seem, then, essentially wrong to graft the excellences of one style to the excellences of another in form or ornament; and yet we have many buildings whose size alone would render them grand, and arranged in the grand simplicity of Grecian art, detailed out with the spirit of ancient Rome, of Palladio, and Vitruvius; nay, often with the weak delicacy of Cinque Cento, and the richness of Gothic. It is but too usual to see the celebrated works of the past the model for our modern buildings; and while the essential original forms are retained, the whole character is deteriorated, if not destroyed, by that studied refinement and variation of detail which our books, our travels, our studies render so easy of obtaining, and which are so ruinous in their effect. We cannot, I think, be too strongly impressed with the truth, for such to me at least seems, that works of art are excellent, and delight us in so far as they express a certain quality, and that this delight becomes more strongly impressed as the *singleness* of any quality becomes more strongly impressed, whether it be grandeur, beauty, grace, picturesqueness, grotesqueness, oddness, or-

nement, fancy, or strength. And it is the perfection of any quality, worked out harmoniously from a variety of forms, all expressive of that quality (the greater the variety or irregularity, the more perfect being the quality), which gives an indestructible value to the works of all times and all nations—to the Egyptian temple, to the Italian palace, to the Gothic spire, to the ornamental work of the Middle Ages, to the Cyclopean as to the Moorish wall; and this is the chief reason which places Michelangelo and Raffaele, the sculptors of the Apollo and the Venus, the architects of Greece and mediæval Europe, so high in our estimation.

But that compound qualities do and must exist, and that it is by the gradual introduction of these that we fill up the otherwise too startling gaps between strongly antagonistic qualities, and that there can be no stop in any system of created and creatable art, which has all these qualities to be expressed; but that there is or will be one continuous, imperceptibly linked series, infinitely varied, joining agreeably the now antagonistic features of each, does seem to me as certain as the world's motion, as clear as light. And it is for this reason as absurd to anathematise one style to the exaltation of another, to pit Gothic against Grecian, or Roman against Norman, as it would be to declare, that because the yew is picturesque, the elm is worthless; or because the chestnut tree is beautiful, the oak has no charms: each one has its uses.

Moreover, does it appear that works of art, though imperfect in many parts, are yet agreeable, as they hold a consistent character throughout all their parts, and with the pervading quality; whilst a work of art, with all its parts perfect in themselves, but not consistent in character one with another, nor with the pervading quality, is unsatisfactory, inferior, and fundamentally wrong in principle and practice?

The perfections, then, of opposite characters cannot be suddenly blended, for a greater or less degree of deformity would be the result: the progress must be gradual to be agreeable. No art could blend the Farnese Hercules and the Medicean Venus directly; yet indirectly, and by gradual stages, their antagonism is adjusted, and these three qualities of grandeur, beauty, and picturesqueness, in their perfection and transition, may be seen,—in the Olympian Jove, the grand; the Laocoon, the sublimely grand; the Hercules, grandly strong; the Apollo Belvidere, the beautiful, inclining in the Disk Thrower to the beautifully strong, and in the Venus to the graceful. Let Salvator Rosa represent picturesqueness, who in his own productions is at times fanciful, at times sublime; but as many might disagree with me as to the justice of these definitions, I would refer to the whole series of Grecian sculpture, which will show, on investigation, the most wonderful and delicate changes between these different characters, and rather still to living men, and then to animals, where the chain of graduated form is wonderfully shown, as seen at the British Museum.

This antagonism in Architecture, which is the cause of so much foolish party spirit, may be seen reconciled to a degree in Italian and Grecian, early and debased Gothic; but the more startling differences as between Gothic and Grecian, Elizabethan and Byzantine, are yet unreconciled, and it is to this end that modern art tends.

Venice, I think, more than any other city I ever saw, informs us on this matter, and has sufficient transition examples in all styles to prevent their strong difference from being disagreeable: I say disagreeable, for here, as in reasoning, the mind is pleased with consequent effects, and avoids sudden and unconnected leaps.

J. B. W.

**BRISTOL ARCHITECTURAL SOCIETY.**—The annual meeting of this society took place on Thursday evening last, the Rev. H. T. Ellacombe in the chair. The Hon. Secretary, the Rev. E. J. Carter, read the report, noticing the transactions of the society during the past year. The report lamented that the funds of the society had fallen off, but the good work of creating a suitable taste for sacred structures was still going on. A drawing of a proposed new window of stained glass, for Salisbury Cathedral, was exhibited by Mr. Bell.

## ROMAN REMAINS AT CIRENCESTER.

No one requires to be told that the site of Corinium-Ceaster is a great archaeological quarry, whence something curious or interesting and illustrative of the ancient occupation of Britain by the Romans is ever and anon turning up. Scarcely a single excavation indeed takes place within the limits of modern Cirencester without disinterring some well-preserved relic. Until now, however, the records of these remains, like the relics themselves, have been very much scattered, but a compendium of the more prominent and interesting discoveries at various times made in that vicinity has just been published,\* and from the handsomely got up volume containing the illustrations and details of these, we propose to glean a few particulars of interest to our readers, although, unfortunately, as remarked by the authors of the volume, in a brief chapter on the architecture of Corinium—

"It is to be regretted that no systematic plan of investigation about the places where stone-work has been found has yet been undertaken; so that, although we have fragments of grand work of this description, consisting of portions of capitals of massive columns, friezes, and other architectural details, they are, in general, too incomplete for perfect drawings or descriptions."

On the construction of the walls of Corinium, its fortifications, and its probable importance, we have the following, amongst other remarks, in the outset:—

"In Leland's time, although much of the wall had been destroyed, still, as he tells us that 'a man may yet, walking on the bank of Churne, evidently perceive the camp of foundation of towers sumptuous standing in the wall,' we are led to conclude that the fortifications of the Roman town must have been on a grand scale.

Much, however, as the wall had then suffered, it has fared still worse in more recent times, as by far the greater part has been removed to form parts of walls of a more modern date; but enough still remains to enable us to make out that Corinium Castrum was fenced by a thick wall, having faced stones without, whilst its inner courses were built of rough irregular stones, firmly cemented together, and imbedded in a mass of concrete.† This structure was probably about fifteen feet high, and from six to eight feet thick, and against it, on the inner side, was thrown up a sloping bank of mixed earth and stones, taken from the enclosed ground: hence the level surface which much of this now presents, as may be observed in the south-east corner of the Camp, enabling the land at that part to be used for very excellent water-meadows.

The wall so constructed was surrounded by a fosse, marked on the eastern side by the present course of the Churn; this stream having been diverted from its ancient and natural channel, which tradition asserts and our observations have confirmed, ran nearly through the centre of the present borough." \* \* \*

"We conclude that the city of Corinium was peculiarly adapted for the centre of a peaceable colony, being itself well defended with strong fortifications—for all old writers lead us to infer that the wall was strengthened by occasional towers—accessible by so many approaches from the distant parts of the island, and also well defended by a chain of fortresses on its only exposed side. Corinium, under these circumstances, would become a capital city, having all the characteristics of a metropolis—warlike preparations, temples, and places of amusement, besides which, the domestic arrangements, utensils, and works of art, may be expected to point it out as a place of luxurious retirement. How far these suppositions are justified, will be determined by the descriptions of the various remains now extant."

Beyond the walls, apparently, the city had an amphitheatre,—

"Which now goes by the name of the 'Bull-ring,' its outline is exceedingly well preserved, although but few vestiges remain of the seats or steps (*gradini*) by which the spectators were usually accommodated. These were doubtless much plainer in Rudder's time, as he remarks, 'I am of opinion that there were originally rows of seats, or steps, one below the other, from top to bottom; but time has much defaced them.' The mounds, for such they are now, with their covering of turf, are twenty feet high, and enclose a space of a broadly oval form, measuring 148 feet from east to west, and 134 feet from north to south: the entrances, which are on a level with the floor of the interior, are 28 feet wide.

\* Illustrations of the Remains of Roman Art in Cirencester, the site of Ancient Corinium. By Professor Buckman, F.R.S., F.G.S., &c., and C. H. Newmarch, Esq. London, 1850. Bell, Fleet-street.

† "Concrete, as constantly found at Cirencester, is made up of lime, sand, and gravel, in nearly equal parts." (†)



"The district of the Querns, with the Amphitheatre, is in the Chesterton tithing; 'the name of which has a kind of evidence of its antiquity, for the Saxon Cestre (and so our Chester), comes plainly from the Roman Castrum,' and the Romans must have had large quarryings as well as earth works in this direction."

In the (too slight) chapter on architecture some fragments of capitals and bases of columns are described, the latter used for merely upholding along with numerous piles of hollow bricks, the terras or floor of a room in a Roman villa.

"Three of these were Roman Ionic or Attic bases, with the lower torus the same diameter as the upper: these are without plinths, and are well turned, the shaft being plain.

The fourth cannot properly be referred to any of the purely classic orders of architecture; it is however of undoubted Roman work, and may be looked upon as a composite style: there is great elegance in its details, though the frequent repetition of the ogee moulding is not in the purest taste. The shaft of this also was plain.

The situation of these, supporting the terras of a room, shows that they must have been portions of rejected or injured work, or else the remains of some earlier building, and, from the appearance of them, we incline to the latter opinion; but, whichever be the received notion, they equally prove that architecture must have reached a high degree of perfection in Corinium, or we should not meet with portions of classic buildings taking the places of common bricks, for no other apparent reason than that the latter ran short, and these bases, of which we might conceive more were at hand, were used as the readiest method of completing the requisite number of pile.

These bases are further interesting, as evidencing that during a long period architecture, in the advanced style of Rome herself, was practised in England by the Roman colonists; and they further show that within the walls of Corinium, the arts of peace, of which architecture is not the least in importance, were characteristic of that city. \* \* \*

Stonework of the usual kind, employed in domestic architecture, is found in all the villas of Corinium, but as these edifices were generally plain externally, and as, moreover, all that now remains of them is little more than portions of these walls, a few feet below the present level of the soil, we can scarcely expect to trace more than foundations of stonework: these appear to have been put in in a substantial manner: the superincumbent masonry is of ashared stone externally, the internal wall being composed of ruder stones, concreted together and made smooth inside by fine concrete and mortar, the whole together being from two to three feet in thickness. The jambs of doors are generally made of upright slabs of stone, devoid of moulding or architectural detail, and indeed the Roman dwellings of Corinium afford no exception to the general external plainness and simplicity of the domestic architecture of this people. The roofs of houses appear to have been made of the fissile stone of the district. Bricks entered largely into the architectural details of the houses, and these, which will be hereafter described, were of various shapes, according to the uses for which they were designed. The arch of the Præfrunium was composed of thick clay tiles, like those used in flooring modern cottage kitchens, and these were uniformly hard and well made. The different materials of which the dwellings were built, as stones, tiles, bricks, and concrete, are generally found intermixed and covering up the floors in the greatest possible confusion."

Illustrations in colours, prepared with the aid of Talbotype, are given of the very interesting tessellated pavement discovered last year at Cirencester, and there are also coloured plates of the previously discovered pavements. In describing these and particularly the former, some local observations on the method of constructing tessellated floors are given, with incidental remarks on hollow and other bricks, and on hypocausts and heating rooms. From these we glean the following particulars:—

"Roman floors appear to have been of two classes.

First, floors elevated above the level of the ground, generally upon a number of small supports or pillars, called *Pile*, in which case they receive the name of *Suspensura*, and were mostly finished with various designs in *Tessellæ*.

Secondly, floors formed on the ground, and without supports, also sometimes tessellated, but not always, as these belonged to second class rooms, and were generally in that portion of the house not used for the immediate accommodation of the proprietor.

1. The *suspensura* were generally the floors of the highest class, and of the most ornate description; they consequently indicate the best portion of the house, and are not, as was at one time universally believed, to be referred exclusively to baths,

but were most frequently arrangements for heating the different apartments of the abode of the Roman.

On the removal of the first floor of last year's discoveries, in Dyer-street, the method adopted for the support of the terras and pavement was admirably shown. In this instance the ground appeared to have been prepared with rubbish, made hard perhaps by beating, and upon this were placed the *pilæ* or small pillars, in eight rows, with eight in each row, at nearly equal distances from each other over the surface of this prepared floor.

The *pilæ* were made of various materials, most of them of bricks, eight inches square, surmounted by a larger brick, twelve inches square, forming a cap. Some of the *pilæ* were constructed of rough hewn blocks of stone, others of part stone, and the rest of bricks, to the required height. Upon each of the little columns so formed rested flanged tiles, with the flange placed downwards, thus forming a continuous floor of tiles, upon which the concrete, composed of a mixture of pounded bricks and lime, was evenly laid, about six inches thick, and this done the whole preparations were complete for the designs of the artist in mosaics.

The flanged tiles, as used for this room, were somewhat curiously placed, the flange being laid downwards, on a larger tile, which formed the cap of the *pilæ*, whilst all round the room was a projection in the wall, upon which the outer flanges rested.

A reference to the Journal of the Archaeological Institute, vol. v., p. 28, will show a section of some pile discovered in Thames-street, in which the flanges are placed upwards: this was a good plan to hold the concrete more securely, but the method employed in the Cirencester example would tend to keep the whole super-structure drier, which was doubtless a reason for the adoption of this arrangement.

The room A presents different arrangements, for warming and ventilation, from the previous one: on removing its terras and tessellæ, it appeared that half the floor rested on *pilæ*, the other portion on a previously prepared solid foundation, ranged within a wall of the height of the *pilæ*. The hypocaust of the former half offered some deviation from that of the room just described; in this the outer rows of *pilæ* were composed of hollow *tuæ* tiles, placed on end, in some of which was put a mass of mortar, apparently to keep them steady, by increasing their weight: these measured 10½ inches high, 6½ inches wide, and 5 inches deep, and had sometimes one, but more frequently two square holes cut on either of their thinner sides, and were ornamented on their flat sides with various lines, some waved and some straight, scarcely two being alike: these, from their variety and the sharp commencement of many of them, appear to have been made in the more complicated examples, with an instrument for that purpose, perhaps of a comb-like form, whilst many of the simply waved lines were made with the fingers, but all of them as the will and fancy of the workman dictated. Under this floor were also two or three larger hollow bricks, of 18 inches long and 8½ inches wide, and 6½ inches deep.

Other *pilæ* were formed of the 8-inch square bricks, some of rough hewn square stones, and the exceptions, mentioned at page 22, by bases of old columns: upon each of the kinds of *pilæ*, which were raised to the height of 20 inches, rested a larger tile, as a sort of cap, 1 foot square, and these each supported another tile 2 feet square, all of which, meeting at the edges, formed a continuous and evenly laid floor of strong tiles, firmly upheld by the *pilæ*, on which to lay the terras.

From these arrangements it will be seen that the great object to attain was that of a free passage of air underneath the pavement, as floors of stone, in a cold and humid climate like that of England, would require some arrangement of the kind, not only to keep them from damp, but also for the purpose of warmth; and in order to effect this, a large arch, built of the flat bricks, opened into the hypocaust, through the north-west wall, which connected it with the *Præfrunium*, and the heated air also could be admitted into the room by two flues, which were built in the wall.

That this arrangement was solely for heating the apartment, and not, as was at one time generally believed, for the purpose of the bath, is further confirmed by only one-half of this floor being a *suspensura*, a circumstance which appears to be well explained by Mr. Tucker, who considers that 'the two parts of the room were intended for use at different seasons of the year, and that it was the *Triclinium* of the house, that portion over the hypocaust being the *Triclinium hybernum*, and the other end the *Triclinium æstivum*, for use in warm weather.

The quantity of bricks, tiles, and other architectural *facilia* removed from the site, offer some interesting examples of the great use made of these in Roman buildings, and their different forms and sizes, each with their peculiar adaptations, seem to afford a valuable lesson to the moderns upon the inexpediency of fettering the manufacture of such useful adjuncts in architecture by fiscal restrictions.

These bricks appear to have been made with great care, and are even now as hard as when first

removed from the kiln: indeed, it is a rare exception to find a Roman brick in Corinium that has been at all acted upon by atmospheric causes; so that we may conclude that they were brought here from a distance, as the neighbourhood affords no clay that would make them of this good quality: this perhaps may account for the occasional use of stones, and the portions of old columns, which were found intermixed with the usual brick *pilæ*.

It was doubtless this cause which influenced the brickmaker—who would depend upon the quality of his article for his customers—to adopt a method of marking his more particular specimens of manufacture, such as the hollow bricks, or to stamp his name or initials, as we observed in some few instances, on the flanged tiles.

11. Floors where the hypocaust was absent were generally small, and without the more elaborate decorative details, but their substratum was prepared with great care, and every precaution was adopted against damp.

The ground was first prepared by beating it, so as to form a hard foundation, upon which was laid a stratum of gravel and bits of broken bricks and tiles: this, which was of irregular thickness, perhaps to meet varied circumstances, was also made firm and compact. Next came a layer of from four to six inches thick, made of mixed coarsely powdered brick, lime, and sand, united into a solid concrete; this was laid as smooth as possible, so that only a small quantity of the finer cement would be required to make the tessellæ fit for the pavement; these three layers appear generally to have been made in accordance with the directions given by Vitruvius, by whom they are described as,

*Nucleus*  
*Rudus*  
*Statumen* } which united make up the *Ruderatio*.

Upon this *Nucleus tessellæ* were laid in villas of importance, or in better rooms, but frequently these were dispensed with, and Corinium has furnished floors made of cement, and it is probable that only a portion of the floors were laid in mosaics in any building; this may have resulted as part of the plan, or it may have been left, in many instances, with the intention of adding tessellæ, at some more convenient period.

It would appear that these cement floors were sometimes coloured, after the manner of fresco, one of this kind having been mentioned to us by Mr. Gregory, of Cirencester, as occurring in the Leazes garden; but there is reason to believe, from its very liability to injury and destruction in such a situation, that this method for ornamentation for floors was not generally adopted.\*

Details, with illustrations, of Roman and Samian pottery, Roman glass, works in metal, coins, urns, and tombs occupy much of the remainder of this volume. One of the most striking of the illustrations of metal works is perhaps that of a pair of compasses, of undoubted Roman origin it is said, but identical in every respect with the ordinary modern article, as if it were the great antiquarian prototype whence compasses have ever since been religiously copied, with the scrupulousness of an imitative talent worthy of China itself.

#### KENSINGTON PALACE FOR A NATIONAL GALLERY.

ALTHOUGH the evidence on the condition of the pictures in the National Gallery has been given before a select committee of the House of Commons, and consequently with closed doors to the public, yet it is pretty well understood to be universally unfavourable to their future conservation in the present locality.†

An idea was tolerably prevalent that a portion of the substantial erection first projected

\* It may be remarked, as tending to throw some light upon the method in which these remains have been entombed in the manner we find them, that the floors are also covered up by a few inches of a finer kind of rubble, occasionally with reddish iron patches: this is no doubt due to the gradual falling of the plaster of the walls, by which, as it mouldered away when these houses were inhabited by the Romans, the ornamental floors were screened from view. The successors in power, finding these habitations, when they began to colonize, either not suitable to their own tastes, or in too dilapidated a state for re-edification, built houses according to their own fancies, using the piles of stones of the Roman town as quarries whence could readily be procured the necessary materials. We should expect that, after so great a change as the fall of the Roman power in Britain, decay of the kind supposed would naturally ensue, and this accounts for the universal coating of the kind indicated, it is pleasant, far more satisfactorily than supposing that this fine rubble covering was put down designedly, by the proprietor, to protect the pavement, in the hope that in better days he might return and find them unimpaired.

† Sir David Wilkie's nose in the statue placed in the hall of the National Gallery exhibits an effectual sample of the deposit arising from the infected atmosphere pervading the interior of the National Gallery. It would be a pity indeed if this visual demonstration were obliterated, until some change were determined on, as it may be regarded now to be a newly introduced instrument, called a *dilatometer*.



for the great Exhibition of 1851 in Hyde-park might eventually have been appropriated to the purposes of a National Gallery. The evidence before the committee generally recommended a movement westward; and so far the idea appeared to have a reasonable feature; but the decided opposition to occupy Hyde-park with any permanent building has entirely abrogated any such application of the industrial edifice of 1851.

We have now to look for a whereabouts westward, and Kensington Palace presents itself. Marlborough House, Pall-mall, is destined by the Crown for the residence of the Prince of Wales. The Vernon Gallery will have therefore but a limited term of occupancy, and, besides, this situation is now considered, according to the evidence, to be affected by the similar atmospheric destructiveness to pictures, so rife at Charing Cross. Pray God the youthful Prince's lungs may not suffer in such a malignant malaria!

Kensington Palace offers ready accommodation for three times the number of pictures we now possess belonging to the nation; and, in these stinting times, could be fitted for their reception at a very trifling cost to the public exchequer. The south front, facing the dial, contains on the upper floor a suite of admirably-proportioned rooms, occupying eleven windows of this façade. There are no attics or rooms above, and top-lights could be constructed with the greatest facility. They are now empty of furniture, containing only the Wallerstein collection of antique Byzantine, German, and Flemish pictures. A similar range of fine rooms are connected with this, forming the principal eastern front, and these apartments also are convertible into picture galleries by having no impediment to the construction of skylights by any rooms above them. Immediately behind this eastern front is a magnificent saloon called the Octagon Room, rising forty feet in height within, which would form a superb hall for large pictures, rivaling in proportion the famous great hall of the Louvre. This apartment may be distinguished, when viewed from the gardens, by the roof rising to an apex over the other buildings, and crowned on the summit by a stone sphere. Standing back from this eastern front, and continuing northwards, is another long range of fine apartments, presenting thirteen windows in its length, called the Queen's Gallery. This part is also uninhabited, and has been so since the demise of the Princess Sophia. Over this suite there are small, low attics, which could easily be removed, and converted into picture galleries whenever our national collection should enlarge to its requirement. This wing of the palace appears, from the monogram over the door at the extreme end, to have been built in the reign of William and Mary, and the pediment of the door is adorned with carving of flowers and fruit in high relief, and with some portions wholly detached: it has every quality worthy of Grinlin Gibbons, by whom it was probably executed, although now exposed, unappreciated, to the rudeness of the weather.

The only use made of any apartments among this vast suite of rooms, besides the southern front, is to contain some old furniture, and a variety of lumber removed from other royal labours. A great quantity of it is so utterly tasteless and inappropriate to modern regal service, that it might as well be sold out of the way, and the money applied usefully. The portion that is good, useful, or ornamental, might safely be stowed in the large empty green-house adjacent, and thus free these fine apartments for a great and noble purpose. There are no inhabitants at all now living in the before-described part of Kensington Palace but the persons in care; and they could be easily located in the other divisions, among the families which, like at Hampton Court, have obtained a royal grant to reside therein. The isolation of a national gallery in this building from any danger of fire arising from the residents in the other part, could, from the distribution of the various buildings, be effected with the most perfect security.

No words need be employed to expatiate on the delightful situation of Kensington Palace, and its magnificent gardens, as an attraction to visitors of every degree. The popularity of Hampton Court to the public, notwithstanding its distance, is an ample proof of the general

feeling for rational and intellectual enjoyment, when combined with healthful recreation.

IDLER IN LONDON.

#### MEMS. IN THE PROVINCES.

SOME additions and alterations are about to be made at the Bedford Lunatic Asylum, on plans prepared by Mr. T. Smith, the county surveyor.—Funds for the improvement of Church-street, Romsey, are being rapidly collected. Schools and residence are to be built west of the churchyard, at a cost of about 1,600*l.*, already raised.—New school-houses are about to be erected at Inkberrow, Worcestershire, on plans furnished by Mr. A. E. Perkins, of College-yard, Worcester, architect.—The foundation stone of the New Tabernacle, Kingswood Hill, Bristol, was laid on Tuesday last week. The chapel will be in the early English style, of Pennant stone, with Bath stone dressings. It will be divided into nave and side aisles, seats open. The design is by Mr. H. Masters, architect. The building will be 87½ feet within the walls, and 56 feet wide. The length of side aisles is 86 feet 6 in.; width of nave 26 feet; width of aisles 12 feet; total width, clear of walls, 50 feet. There will be piers and arches to carry clerestory windows flanking the nave. In front are two campaniles, set diagonally, available for access to children's gallery, with open porch between. The front is lighted by a triplet window. The roof is to be open timbered, and stained as the pews are; the walls are to be paved with tiles; the expense, including the boundary walls, will be, it is said, under 2,000*l.* It will accommodate about 1,300.—Luton Church, near Leominster, is about to be pulled down, and rebuilt on plans by Mr. Cranston, of Hereford, architect.—The public baths at Warrington were opened on Saturday week to the public, at one penny each; Mondays and Saturdays to be thus devoted in the meantime to the public, and the other days in the week to the subscribers.—On Thursday week, according to a Liverpool paper, four eminent contractors sent in estimates to the Commissioners of Woods and Forests for the construction of the sea wall of the great float in the Birkenhead Docks. There are now upwards of a thousand men employed in the various portions of this work.—A national school with dwelling is about to be erected at Bolterstone, near Sheffield, on plans by Messrs. Harrison, of Sheffield, architects, &c.

—*Punch* depicts the police luxuriating idly in the parks on Sundays, and the swell-mobility doing what they like with other people's own on the first day of the week, as a day made "sacred to idleness," in caricature of the *seventh*, as the type of creative rest,—but the police are likely, in sober earnest, to have a somewhat heavy addition to their Sundays' surveillance, if the example of the Sheffield gas stokers and cokers prove to be contagious. They complain, in the local *Times*, that their only exactive Sunday customers are the street lamps, the church lamps, and the lamps of those other temples devoted to less spiritual observances,—that the gas used on Sunday must be made on Sunday and attended to on Sunday,—and that they cannot see why they should be compelled to labour on behalf of these three "old lights," any more than the letter-carriers on behalf of the social, moral, and intellectual light of the community, on the day of days. They, therefore, virtually threaten to place the streets in darkness, and the churches also, as well as the gin temples, on the evenings of that day.—Public baths are to be erected at Heywood, Bury, as a tribute of respect to the late Sir R. Peel, and to be hence called the Peel Baths. Many a village and town might be thus perhaps readily supplied with such useful establishments at the present moment. At Heywood they even calculate on collecting a sufficient sum for public parks and pleasure-grounds for the working classes.—A considerable portion of a churchyard wall at Mark-lane, Leeds, gave way and fell on Tuesday last week. Another portion had been shortly before rebuilt with palisades.—Seventy-five houses, according to the *Leeds Intelligencer*, are about to be built there on the Leathby-road Pottery Estate, on plans by Mr. Joseph Thompson, of Leeds, architect.—The Streets Committee of the Leeds Town Council on Monday week accepted the lowest

tender of the thirty-seven sent in for making a large main trunk sewer, and several miles of branches. The works include about 15½ miles of sewerage, with sluice or flood gates, and occupation bridge; also two large cast-iron culverts under the river Aire. Messrs. Warren and Denroche, of Cardiff, South Wales, are to execute the whole for 34,650*l.* The highest tender was 97,800*l.*, and the majority ranged between 40,000*l.* and 50,000*l.* Messrs. Warren and Denroche, it is said, have executed railway works in South Wales, and were connected with the contractors for the docks at Birkenhead. The 15½ miles included in the contracts just let are but a portion of the sewerage contemplated in the scheme of Mr. Leather (estimated to cost 80,000*l.*) for draining the three townships of Leeds, Hunslet, and Holbeck.—The Darlington Gas and Water Company have announced a reduction in the price of gas from 6*s.* to 5*s.*, per thousand feet. A few years ago the price was 10*s.*—A police station is about to be erected at Welton, East-Riding, on designs by Messrs. Lockwood and Mawson, of Kirkgate, Bradford, architects.—A school and master's house are to be built at Upminster, Essex; architects, Messrs. Kendal and Pope. The following are the tenders:—

School and House.	Walls, &c.	Total.
Dowsett, Good Easter ..	800 .. 69 ..	869
Hammond, Great Warley	796 .. 70 ..	866
Curtis, Stratford .....	744 .. 84 ..	828
Piper, London .....	693 .. 83 ..	776
Holmes, East Ham (accepted) .....	580 .. 60 ..	640

#### WESTMINSTER BRIDGE.

It is much to be regretted that of the six principal bridges which cross the Thames in London, four of them—viz., London-bridge, Southwark-bridge, Westminster, and Blackfriars—should all have exhibited symptoms of settlement and insecurity: with regard to the last of these, namely, Blackfriars, if great precautions are not taken, the time is not far distant when the whole fabric will be precipitated into the river without giving hardly a minute's notice: indeed, the wonder is that it had not long before, notwithstanding the large sum expended lately upon its renovation.

With our present improved knowledge of bridge-building, let us suppose that a new bridge be constructed at Westminster, consisting of five openings, each about 160 feet wide, the piers of granite or some other equally durable stone, the arches of well-seasoned timber covered externally with ornamental cast iron of suitable Gothic design, and well painted:—such a structure might be made of great beauty of design, and of sufficient durability to last for centuries, with a little ordinary repair: its appearance would far exceed anything of the kind in the metropolis, and its entire construction might be effected for about 200,000*l.* and completed in three years, while the stone of the present bridge would amply repay the expense of the temporary one, which would be requisite while the new bridge is building.

That a bridge of this description would be much cheaper and lighter than one built entirely of stone, and much safer and more durable than a suspension bridge, there can be no doubt; and if a plan similar to the one here suggested were adopted, it would effect considerable saving of the public money, and adorn London with a novel and beautiful structure.

E. E. M.

CALIFORNIAN QUARTZ FOR THE WASHINGTON MONUMENT.—A block of gold-bearing quartz has been procured, at the expense of the State of California, to be contributed in the erection of the proposed monument at the seat of general government. Each of the States is to be represented by a block of stone from native hills. The Californian block is from the Mariposa diggings, near Fremont's mines, and weighs about 125 lbs. In shape it is irregular, approaching a square, its sides varying from 18 to 20 inches in length. It averages in thickness 9 inches—across its surface diagonally it is 21 inches by measurement. Very little gold is perceptible to the naked eye, but it is estimated to contain about eighty dollars' worth.

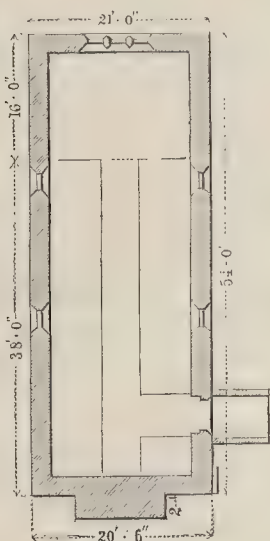


ST. CATHERINE'S CHURCH, AT OPPENHEIM.





KENTCHESTER CHURCH, HEREFORDSHIRE.

ST. CATHERINE'S CHURCH AT  
OPPENHEIM.

THE south side of St. Catherine's Church, at Oppenheim, shown by the accompanying geometrical view, is a fine specimen of German Gothic architecture, belonging to the beginning of the fourteenth century. The enclosing wall of the first story is flush with the face of the buttresses; and the covering forms a balcony or narrow platform, between the buttresses. The height to the top of parapet from the ground is about 68 Rhine feet,—to the top of the parapet an aisle about 42 feet. The clerestory windows seen above are of large size.

## KENTCHESTER CHURCH.

THE accompanying drawing contains a view, plan, and details of the west gable of Kentchester Church, situated a few miles, in a westerly direction, from the city of Hereford. It is an extremely small, but picturesque structure, interesting both to the artist and architect, and is an example of what may be effected by small means, skilfully applied. It is of the simplest plan, being of an unbroken oblong shape, not exceeding 50 feet in length by 17 wide in its internal dimensions. There is a small south porch, and the chancel is marked,

externally, by a slight depression of the ridge of the roof, and internally by some carved timber-work, under which formerly stood a screen. But the most remarkable feature of the whole structure is the singular provision of a bell-turret in the gable of the west end, in which are placed two lancet-pointed openings over a large buttress, which occupies half the width of the west-end, branching into two smaller ones on either side of the niches, and which will be better understood by reference to the drawings. In the niches, which are quite devoid of enrichment, are placed two bells, which are rung from the interior of the church. The parish is of small extent, and but thinly populated; it is, nevertheless, remarkable for its fertility and pleasant scenery, and still more for having contained within its area the *magna castra* of the Romans—one of their most important military stations, and which, in the time of Caractacus, must have afforded a striking contrast to the present peaceful aspect of the locality.

JOHN CLAYTON.

THE "GENTLEMAN'S MAGAZINE" has been to the mill to get young again. The August number is excellent, nicely varied, and pleasantly illustrated.

BATTERSEA PARK AND ITS RUINOUS  
CONSEQUENCES.

IN last week's *London Gazette* there will be found among the bankrupts, the name of Henry Hart Davis, of Battersea, builder. He was brought up this week in custody from the Queen's Bench before Mr. Commissioner Fane, for the purpose of being liberated from that prison. Davis is one of the unfortunate wights who have property in that part of Battersea designed for a considerable time to be formed into a park for the public recreation and amusement. Davis obtained a lease for ninety-nine years of some land which he underlet, and thereby netted a considerable income, when the under-lessees were served with notices by the Government not to proceed with the buildings. The property as time rolled on became deteriorated: Davis sent in his claim to Government: but unfortunately the Legislature, while it has given the Government the power and option to take property on its own terms, has not bestowed upon the claimants the ordinary right, as in railway and other matters, of having their claims adjusted before a compensation jury. The apathy of the Woods and Works has been attended with serious privations and disastrous consequences. One builder, named Budge, erected fourteen carcasses, and



was served with notices to discontinue: the result was that Budge, not possessing an independent fortune, was forced into bankruptcy, and the erections are now dropping to ruin. Lord Denman granted a rule nisi for a *mandamus* to compel the Commissioners to proceed, but that learned and noble lord having retired from the judicial seat before the matter came on for argument, Lord Campbell held that the Commissioners were merely trustees for the public, and were not bound to take any steps until they had the necessary funds in hand for the completion of the park. Thus law is opposed to justice, and the park remains *in statu quo*. The landowners have since offered the Government to take debentures instead of money, if they will proceed with the project. This has been met by numerous actions, claiming on behalf of the Crown the banks of the Thames. Mr. Cubitt is one of the defendants, and the Royal demand includes the willow banks of Barnes, Fulham, and Mortlake, the wharfs of the City of London, the Isle of Dogs, and the banks of the Clyde. It is thought that one action might have been sufficient to decide the right of the Crown, but the active and zealous advisers of the Commissioners entertain a different opinion. Davis, who, it is said, could pay forty shillings in the pound if his claim upon Government were settled, was released from "durance vile" by Mr. Commissioner Fane.

#### FALL OF A MILL AT STOCKPORT.

On Monday last, a large portion of a new mill at Stockport fell suddenly to the ground, and, so far fortunately, at dinner-hour, though ten or eleven persons were killed. The building was a fire-proof one, and only about a month occupied. The walls, which, it is said, were apparently substantial enough, were 47 yards long and 20 wide, in four stories; and rested on the solid rock, but down the centre of the mill ran a row of iron-ribbed pillars, 26 feet long, 14 inches diameter in the centre, and tapering to 8 inches diameter at each end. On the heads of these pillars the flooring beams, from which sprang the fire-proof arches over the first floor, rested. The pillars were 10 feet apart, with one intermittent, second from the west end, where, in order to support the intermediate flooring, a large and heavy iron flange beam, with an arched top 3 feet 4 inches deep in the centre, was carried longitudinally down the mill, supported on the heads of the two nearest pillars. To the centre of this beam the flooring beams from the outer walls were carried. The accident occurred just at this point, so that the construction of this beam and the adjoining pillars should be looked to when the rubbish has been cleared away. One man states that he saw some arches near one of these pillars first give way. Strict investigation should follow.

#### DOINGS IN DUBLIN.

THE Board of Superintendence of City Prisons are at present making alterations to Richmond Bridewell, for the purpose of enabling them to carry out the "separate system" in a large portion of the building. The divisional walls of the class-yards have been taken down and re-erected on a radiating principle, by concentrating them to a certain point, which is used as an inspection hall. The plan of the hall is semi-octagonal, 10 feet wide, and as it is in immediate connection with the prison, there is a means of surveillance afforded to the governor and his officers: the walls are of hammer-dressed black stone; the dressings of doors and windows, copings of yard walls, &c. of chiselled granite. The tread-wheel buildings have lately been augmented, and fitted up with new seats and metal partitions. A reservoir (in connection with the tread-wheel) 10 feet long by 8 feet wide, has been recently erected; it is plastered on the inside with Roman cement, vaulted, lined, and floored with stock bricks: the floor rests on a bed of concrete 18 inches thick. The cost of these alterations was 105*l*.

The Board have also lately erected a drying closet at Grangegorman Penitentiary, and fitted it with heating apparatus, &c., complete, which was furnished by Mr. Turner, of Hammersmith Iron Works: the cost was 100*l*.

The foregoing works have been executed under the superintendence of the Board's architect, Mr. John S. Mulvaney.

The City of Dublin Grand Jury are erecting additional buildings to the Sessions Court-house, Green-street, for the accommodation of prisoners pending trial, the present arrangements having been found inconvenient and inadequate. Messrs. Murray and Denney are the architects.

The Commissioners of National Education in Ireland have advertised for tenders for the erection of model agricultural schools at Gormanstown, county Tipperary, and Athy.

The works at the Dublin terminus of the Midland Great Western Railway are rapidly approaching completion: the cornice and parapet on the Directors' house are laid all round, with the exception of the centre projection, on which the place of the cornice is to be supplied by an ornamented cove, supporting a pediment of Egyptian character. The stone is the same as that of which the Drogheda and Great South-Western Railway termini were built, and is supplied from Ballyknockin quarry. The Colonnade and booking-offices are complete. Mr. Mulvaney is the architect.

The Dublin Mechanics' Institute, having succeeded in collecting the sum of 200*l*. required by Mr. Atkinson, of College-green, previous to his contributing his donation of 100*l*. towards the decoration of the theatre of the institute, are, we understand, about advertising the same for public competition. They also purpose providing accommodation for a larger number of pupils by erecting additional class-rooms.

The firm of Todd, Burns, and Co., purpose adding to their premises, and have received tenders according to plans, &c. by Mr. Caldbeck, architect. It is intended to take in a large portion of Jarvis-street. The style is Grecian.

#### RATING GAS COMPANIES' WORKS.

THE PHOENIX GAS COMPANY *VERSUS* THE PARISH OF CHRISTCHURCH, SURREY.

This was an appeal, at Surrey Sessions, by the Phoenix Gas Company against the amount at which they were rated by the parish of Christchurch on the poor's-rate made October 25, 1849, for the Midsummer quarter. The particulars will be useful to those engaged in rating.

Mr. M. Chambers opened the case in support of the appeal, which he said was one of great importance to the Phoenix Gas Company, as the decision would settle the principle on which they were to be rated in twenty-three parishes, and, if given against them, they might have to pay three or four times as much as they ought if their property were fairly valued. In this case they appealed against the assessment of October 25, by which the appellants were rated at 181*l*. on their gross estimated rental, and at 683*l*. as the rateable value of their gas mains in the respondents' parish. They were surprised and astonished at being so rated, because the previous rateable value of such mains was only taken at 90*l*.: accordingly they felt bound to appeal. In the respondents' parish they had no gas works for the manufacture of gas, but simply pipes for the purpose of supplying gas to the parties requiring it in the parish, and to the public lights, as also pipes for the purpose of conveying gas for distribution in other parishes. They had three stations for works for the manufacture of gas; one at Bankside, one at Greenwich, and a third at Vauxhall; they also had two gasholders or reservoir stations, where gas was contained for the purpose of being distributed in other parishes, one being in Wellington-street, St. George's, and the other near the Oval, Kennington. What he also had to contend was, that the proper way of apportioning the total rent was by the cubic contents, and not by the length or superficial surface occupied by the pipes, or by the amount received for gas sold. He should contend that they were not to be rated according to the length of pipe in the parish, or the superficial area, but that the justest and most proper way was to take the cubic contents, or, in other words, the capacity of the pipes for conveying gas. An appeal had already been tried by the Kent Sessions against the rate made in the parish of Greenwich. In that appeal the Kent Sessions adopted the superficial area. They did not shut up their books nor keep back any statement, but they said the just mode of rating was according to their actual expenditure and receipts, according to Act of Parliament: it was not on their profits or trade, but on their receipts, after the deductions allowed by Act of Parliament, that they contended they ought to be rated. That

is, they contended that, looking at what they had done with the land which they occupied, the fair criterion of value, as required by Act of Parliament, was what a tenant would give if he were to hire it. The company, therefore, opened their books to the inspection of the respondent parish, so that if there were anything incorrect they might be able to state to the Court where they thought the appellants were wrong. The principle on which they had proceeded was according to the strict rule enjoined by the Act of Parliament. First of all they took the net profit and then made the statutory deductions allowed by the Act of Parliament, and that gave them what they considered the rateable value. A gentleman named Lee had been employed for that purpose. First he ascertained the total receipts, from which he deducted the payments that gave of necessity the net balance of profits; but having done so before arriving at what a tenant would give, they must make certain further deductions. In the first place, as regarded a concern of that description, it was obvious that there must of necessity be a large floating capital, which, like the capital involved in a silversmith's shop, must remain constantly invested, and with regard to which there must be an allowance, or per centage, in order to make it worth a tenant's while to take the property. For that purpose a certain sum had been taken as a floating capital, on which Mr. Lee had allowed a per centage of 5 per cent. as interest. He had then taken 12½ per cent. as tenant's profits. Now, in some cases as much as 20 per cent. was allowed as tenant's profits, and in manufacturers a higher per centage was generally allowed than in farming and other matters. Mr. Lee said 12½ per cent. was a fair allowance for tenant's profits in this case. Then deductions were made for insurance, renewal of buildings, and trade fixtures, works, pipes, &c., and that left the balance at which the works ought to be rated, that is, the stations containing gas manufactories, the stations for gas reservoirs, and the pipes spread over the twenty-three parishes. Having thus arrived at the proper balance on which, if the whole were in one parish, the rates ought to be imposed, the next thing was to divide that amount among the twenty-three parishes, and the course pursued in that respect was to value the whole of the land, buildings, apparatus, and mains, and take the total value, and then to take the value of the pipes; having so done, the next step was a mere rule of three sum: as the total value of the works and pipes is to the total rateable value, so is the value of the works in any parish to the rateable value in that parish. Having gone through that mode of proceeding, he arrived at the conclusion that, with regard to the rateable value of the pipes in that particular parish, the amount at which the Phoenix Gas Company ought to be rated was 1134*l*.

Evidence having been given as to receipts, &c., Mr. William Innes, assistant engineer to the company, produced accounts showing the quantity of coal consumed at the various stations down to Midsummer, 1849. It amounted to 39,668 tons for the year. The quantity of gas manufactured from that was 352,322,000 cubic feet. The rental for the quantity supplied was 72,491*l*. 17*s*. 3*d*. The price to private consumers was 6*s*. per thousand, and to the public burners about 4*s*. The amount of leakage was 22.9 per cent., 77.1 per cent. of gas being actually burned. The amount of leakage was ascertained by deducting the quantity consumed as shown by the meters from the quantity measured into the reservoirs before distribution commenced. The quantity consumed by the public lamps was ascertained by fixing meters to several, and taking an average of the results. He accounted for a large amount of leakage by the number of main pipes used to convey the gas to the consumers. The whole quantity of main pipes was upwards of 440,000 lineal yards, or about 250 miles. The quantity of coals carbonized at all the stations in the year ending Midsummer, 1849, was 39,068 tons. The greatest number of retorts in use during that time was 591; that was at Christmas, when they always made a much larger quantity of gas. The average number of retorts in use for the whole year was 448. The retorts were "charged," that is, the coal was put in four times in twenty-four hours. The average weight of coal carbonized in each retort in the twenty-four hours was nearly 6 cwt., or 1½ cwt. to each charge. The retorts were all iron. A large deposition of carbon took place in the inside of the retort during the process of carbonizing the coal, so that, after being in use some time, an old retort would be incapable of taking so large a charge as a new one, owing to the incrustation on the inside. The average quantity of gas made at their works from a ton of coal was nine thousand cubic feet. If a larger quantity were made, the quality would be considerably deteriorated.

Mr. Lee was then called and examined by Mr. Chambers.—Is an architect and surveyor. Had valued Battersea, Wandsworth, Putney, Wimbledon, St. James (Westminster), and Lambeth.

\* Mr. Chambers' speech, and the case generally, is reported at length, in the *Journal of Gas Lighting*, for July 10, 1850.



Had surveyed and valued the lands, buildings, and mains belonging to the Phoenix Gas Company, with a view of ascertaining how they ought to be rated. Had made out a valuation and calculation from returns furnished to him by the company:—

Net balance of profit for twelve months .....	£23,041 2
Deductions to arrive at the gross estimated rental:—	
Five per cent. on the capital employed by the tenant, viz. six months' expenses .....	£30,804
Do. on present value of the mains, the cost being 22,500 .....	15,000
Do. on the present value of the retorts .....	7,731
Amount of tenant's capital .....	£53,135
Five per cent. on the above .....	£2,656
Amount of tenant's profits, being 12½ per cent. on £53,135, the capital required, &c. ....	6,642
Amount of interest and tenant's profit for twelve months .....	£9,298 0 0
The gross estimated rental of the whole property .....	£13,343 1 2
The rates and taxes are previously deducted.	
Insurance on buildings ..	£162
The annual repairs of buildings are previously deducted.	
For renewal or reproduction 2 per cent. on the following, viz.:—	
Trade fixtures .....	£30,672
Utensils .....	12,415
Mains on the station .....	6,371
Street mains .....	105,760
Total value .....	£164,649
Two per cent. on this is .....	£3,292
Total of insurance and renewal .....	£5,484 0 0
Net rateable value of the whole property .....	£8,899 1 2
Total saleable value of all the stations .....	£170,386 0 0
Do. of all the street mains laid .....	105,760 0 0
Total saleable value of all stations and mains .....	£276,146 0 0
In Christchurch parish there are 9,160 yards lineal of mains, various sizes, the contents being in cubic yards .....	165
In all the other parishes there are 431,814 yards lineal of mains, various sizes, the contents being in cubic yards .....	5,074
Total cubic yards of street mains in all the parishes 5,220	
To divide the net rateable value of all the stations from the net rateable value of all the mains:—	
1276,146, (the value of all the property) give 9,889, as the net rateable value of all the property, what will 170,386, (the value of all the stations) give?—Answer, 6,101.	
Net rateable value of all the stations £9,101	
Do. of all the mains .....	8,798
Net rateable value of the whole .....	£9,889
To obtain the net rateable value of the street mains in Christchurch parish only:—	
If 6,220 cubic yards (the total quantity of street mains) give 9,889, as the net rateable value of the whole of the net rateable value of all the property, what will 170,386, (the value of all the stations) give?—Answer, 1134.	

He had included in his calculation of 6,101, for stations, the connecting main passing through the parish of Christchurch, between the station in Bankside and the large reservoirs in Wellington-street. It is fourteen inches bore, and the part passing through Christchurch is 545 yards in length. The value and cost of laying down would be about 22s. 6d. a yard. It weighs 307 lbs. a yard, and the cost would be 6s. 6d. a cwt. It would cost 3s. 6d. a yard for laying down.

By the Chairman.—He considered 9,889, to be the value of this property, including buildings, machinery, and all fixed apparatus, if the company wished to let it to an individual or another company, and that a company would give that sum for the property to carry it on as a gas works. Had made certain deductions in his statement, on account of this being a company.

Mr. Bodkin replied on behalf of the parish. He said that they were all agreed that the sum they were here endeavouring to discover is, what a tenant would give to occupy these works and carry on the trade, and to provide for such expenses as the law permits to be charged against the tenant's rent. The principle, therefore, is very clear; and there would be no great difficulty if the whole of the works were situated in one parish, but as they extend over several, that created considerable difficulty, as the Court would have to decide not only on some matters of fact, but also some questions of law. Here was a company having a large capital of some four or five hundred thousand pounds in this concern; and if they started with the assumption that 9,000, was the sum at which these works ought to be assessed to the poor, in the absence of the accounts of the company, he thought it was not unreasonable on the part of the parish officers, who, not having a true basis of calculation, had had recourse to other tests, one of which was to ascertain the cost of the works, and assume that five or six per cent. might be taken as the

return for which a company might be expected to embark its capital. Applying this rule, they would have some very large sum as the probable result of such a mode of calculation. Mr. Bodkin then proceeded to impugn the various items of the accounts, and made the total expenditure 54,304, which, deducted from 89,678, which he had made the receipts, left a balance of 35,374. He had now arrived—subject to such control as the court might think fit to exercise—at the first stage of that inquiry, that is the difference between the actual receipts and the actual expenditure of the company, which was the first thing that a tenant would look to in order to find what he might give. Here was a concern with a gross profit of 35,374; and the next step was to ascertain what proportion of that sum a tenant could afford to pay as rent. The way in which that was put before them by the other side, without any evidence except that of Mr. Lee, who put in an arrangement of figures, was only an assumption that certain liabilities would be requisite to enable a tenant to carry on such a business. He thought it was a mere matter of opinion which would be entirely a question for the court. In the first place, it was said that a man embarking in such a concern would require a floating capital equal to six months' expenditure, that is, 30,804. They also said he would require the value of the meters, 15,000, and of the retorts, 7,731, making a total capital required to carry on the concern of 53,135. Was ever any thing so preposterous as that a concern where the returns were quick, the rents being received quarterly, and three months' credit given for the materials, if required, would require such a capital! Nobody who ever carried on a gas work had been called to say whether it was correct or not. He contended that the only capital required was what he would have to pay ready money for during a period of three months, because, at the end of the first quarter, he would begin to receive his returns. He then came to what in this case was a question of considerable difficulty, the works of the company running through a number of parishes. This was the proportion of that rateable value which ought to be allotted to the several parishes. The sum to be divided, after deducting 5,068, the value of the stations, at which the parishes actually rated them, was 22,772, in one case, or 25,000, in the other. He believed it would be found, on a calculation of the figures given them, that if the company's mode of distributing this sum was to be taken, that is, according to the capacity of the mains, the parish would be entitled to 3 per cent. on the amount left to be distributed: that is, by comparing the capacity of the mains and pipes in the parish; but if his principle of distribution with regard to the money received for the supply of gas in the several parishes was to be taken, their proportion would be 5 per cent. That was now the difference between them. The one mode gave them 3 per cent., and the other 5 per cent.; but whether, the court took 3 or 5 per cent., the result would support the particular rating in this case. The actual rate was 682; and now 5 per cent. on 25,000, would be 1,250, and 3 per cent. would be 750.

The Chairman said, we have given our best attention to this case, and have gone through all the figures, and we come to this conclusion, that we must disallow some of the deductions made on the part of the gas company, and that will bring up the total rateable value to 16,089, instead of 9,889, as stated by the company. That is our decision with regard to the figures. With regard to the principle of division, we think it would be very inconvenient to base it on gas rental, and we have therefore gone on the principle of capacity for distribution. On this principle we find that the rate should be 326. 13s. 9d., instead of 682., and we therefore decide that the rate-book should be amended from 682. to 326. 13s. 9d.

Mr. Bodkin.—Have you allowed them for renovations?

The Chairman.—Yes; we admit the principle, but not exactly the amount. We have made a distinction between the two first items and the two last. We allow 2 per cent. on trade, fixtures, and utensils, and 11 per cent. on mains.

Mr. Bodkin.—What sum do you take off for the valuation of stations? The company say that they amount to 6,101, but they are only rated at 5,068.

The Chairman.—We have taken the amount at which they are actually assessed. We do not add anything for the connecting main between Bankside and Wellington-street, as that is allowed for in the measurement of capacity. The Bench will grant a case to the Queen's Bench on the legal points at the request of either party.

NEW YORK.—The erection of the Jenny Lind Hall in New York is rapidly progressing, about 150 men being variously employed in connection with it. The building will be 150 feet long by 50 broad, and 90 feet in height, and will cost, it is estimated, about 80,000 dollars.

## RAILWAY JOTTINGS.

THE Great Northern line is ready for opening on the 7th inst., from London to Peterborough, a stretch of 76 miles. The total area of rail that will be connectively thrown open on the occasion will be 220 miles, with termini at Peterborough, Boston, Lincoln, Hull, Gainsborough, Great Grimsby, and York. Of this mileage 76 miles consist of the trunk, and 144 miles the Lincolnshire loop, with links and branches. When the Towns' line between Peterborough and East Retford, and other branches, are completed, the Great Northern will represent a network of railway, north and south, little short of 300 miles, constructed at a cost of between 7,000,000, and 8,000,000, and so far on a much less costly scale than any other line in the kingdom. Arrangements on an extensive scale have been made for a large coal traffic, at reduced prices, to be brought from the South Yorkshire coal fields.—The works of the Oxford Deviation line of the Buckinghamshire Railway are about to be executed from Islip to Oxford, a length of about 6 miles, on plans by Mr. Dockray, of the Euston station.—The fourth tube of the Britannia Bridge has been safely floated to its place.—The Institution of Mechanical Engineers, are getting up a subscription, it appears, for a suitable monument in honour of the late George Stephenson, the maturer of the locomotive. "The place for depositing it," says a contemporary, "is not yet fixed upon; but it is understood that the authorities at Westminster Abbey have made some objection to placing the monument in that edifice, and Saint Paul's has been suggested instead."

On Monday week the Dumbartonshire line was opened for traffic.—A correspondent of the *Athenæum* has revived what he may not be aware is an old semi-serious suggestion of our own, for the speedy conveyance of letters, &c. "Introduce," he says, "into a solid metal tube communicating between the places a metal sphere or canister filled with letters, &c. (or a series of them linked together): exhaust the tube by means of a stationary engine similar to that used on atmospheric railways, and in a very short time it will deliver its burthen at its destination. This plan, though of course not so rapid a mode of communication as the electric telegraph, has other advantages over it."

## Miscellanea.

FREE OPENING OF ST. PAUL'S.—On Mr. Hume, in the House of Commons, moving the resolution already noticed, Sir G. Grey stated that the dean had written to him to the effect that the vergers had been for a long period the sole irresponsible receivers of the payments for admission, of which no account was rendered to the chapter; and that the control of the Ecclesiastical Commission over the revenue presented a difficulty in compensating the vergers. Sir G. Grey had communicated with the latter, who said they had found that they were not authorised by law to sanction the arrangement proposed by the dean. Some alteration of the law might therefore be necessary, but added Sir George, I will communicate further with both the dean and the commissioners, in the hope that some arrangement may be made by which the object can be obtained.

THE "THANKSGIVING MODEL BUILDINGS."—The following tenders were delivered July 20 for the "Thanksgiving Model Buildings" to be erected in Portpool-lane, Gra's-in-lane, by the Society for Improving the Condition of the Labouring Classes.—Mr. Henry Roberts, Hon. Architect:—

	For Dwelling houses for 30 families and 128 women.	For Public Wash. houses.	Total.
	£	£	£
Geo. Bird .....	6,800	1,320	8,120
Haward and Nixon .....	6,650	1,419	8,069
W. Cubitt and Co. ....	6,551	1,359	7,910
T. & W. Piper ....	5,907	1,080	6,987
Lock and Nesham .....	5,900	990	6,890
Sam. Grimsdell ....	5,655	1,210	6,865

The dwelling-houses are to be of fire-proof construction, similar in principle to those built by the society in Streatham-street, Bloomsbury. The wash-house is not entirely a new building, and the boiler, tank, and pipes are not included in the contract.



**SOCIETY OF ARTS PRIZES.**—To be able to speak in praise of an individual or of individuals is far more grateful to the feelings of an honest man than the necessity of doing the contrary, yet occasions may arise when the submitting to the pain of the latter will become an imperative duty, compelling him to act the gratuitous part of a censor. I trust you will, as one of the best friends the artist has, allow me to give a slight twitch to a public institution calling itself the Society for the Encouragement of the Arts, &c. but which ought to be called otherwise. His Royal Highness Prince Albert some time ago, in addressing a deputation from the society, impressed upon them the necessity of encouraging the decorative arts with a view of improving the character of British manufactures, and no doubt the deputation went home with a fixed determination to follow the recommendation, the result being the issuing of a yearly list of premiums, which scarcely a student in any of the schools of design thought it worth while to try for at first, and which those even who got prizes now consider perfectly beneath their notice, accompanied as the list of prizes is by a most dilatory system. It is a fact scarcely creditable that some of the candidates in the last competition have had to wait from January 1st until now in suspense as to the result of their efforts, and that then the paltry premium of five pounds in the case of a design for a fire-screen was reduced to three. Even if this design did not come up to the standard of taste which the art-committee are in the habit of consulting, it was still entitled to the full premium, it being the best submitted; but I have good authority for stating that it was a good design, which had cost a great deal of research, and to which a great deal of consideration had been given; but it was an outline, whereas it should have been illuminated. I have enclosed a list of the prizes, and I submit whether you think the beautiful ornamental composition of the ancients or of the *cinque cento* were elicited by the like encouragement. Three pounds for a dinner plate; five pounds for a model of a candlestick, and so on; the largest amount being ten pounds for a tea-urn, but which is likewise very modestly requested to be accompanied by a full-sized model.—W.

**COPYRIGHT OF DESIGNS.**—The first clause of the new bill enacts that any design or invention not previously published may be "provisionally registered" for one year, upon application to the registrar. Clause 4 enacts that articles made after the design or invention cannot be sold during the period of provisional registration, without forfeiting the right to this protection, the provision not, however, hindering the proprietor from selling his sole property or right in that design. Clause 5 provides that the period of provisional registration may be extended for six months, on the decision of the Board of Trade. Clause 6 sets forth that the provisional registration will extend to sculptures, models, copies, or casts, within the protection of the Copyright Act. Clause 7 provides that, in case of piracy of any such model, copy, or cast, the person so offending shall forfeit not less than five or more than thirty pounds; the penalty payable to the proprietor of the infringed article. Clause 8 enacts that designs for the ornamenting of ivory, bone, papier maché, &c., may be registered under the Designs Act of 1842, for three years. Clause 9 provides that the Board of Trade may extend copyright in ornamental designs for an additional time not exceeding six years. Clause 11 provides, that in certain cases to be judged of by the registrar, drawings of the designs may be dispensed with when application is made for provisional registration.

**ECCLIOLOGICAL LATE CAMBRIDGE CAMDEN SOCIETY.**—Meetings of the Committee of this society were held on June 12 and July 20. In a letter of thanks for the society's grant to Sydney cathedral, the Rev. G. Gilbert called attention to some glass now missing from Canterbury cathedral. A grant of £1 was made in aid of the fund for a testimonial to the late Dean of Hereford, by filling with stained glass the eastern windows of the Lady chapel, and, if possible, finishing that part of the cathedral. It was also resolved to undertake the coloured ornamentation of one bay of the nave in the round church of St. John, Little Maplestead; or, in

the event of the works not proceeding so far, some equivalent decorative work. An account of the discovery of some Romanesque portions in the present church of St. Nicholas, Aberdeen, by Mr. G. J. R. Gordon, was submitted; and some corrections and additions to the "Handbook of English Ecclesiology," were received from Mr. J. J. Rogers, of the Temple. It was agreed that the publication of the number of the *Instrumenta Ecclesiastica*, due in July, should be deferred till September; and the Committee, with the assent of Mr. Butterfield, resolved in future to invite drawings of details, &c., suitable to the series, from any quarter,—especially from the professional members of the society, and to adopt any that might appear likely to be useful. An advantage of this plan would be, it was thought, that it might bring the skill of younger architects more under the notice of the committee. A fit person having been found to undertake the details of funerals in a religious and correct way, it was agreed to issue proposals for a burial guild, and to receive the names of persons wishing to co-operate.\*

**THE GLAZING OF THE GREAT GREEN-HOUSE.**—A correspondent is very desirous that the glazing of the building for '51 be creditably performed. He says,—"The glazing alone will employ about 150 glaziers, for ten weeks, and as that number of respectable workmen will be rather difficult to collect, they will require efficient superintendence, or half the glass will be put in without proper bedding, and the risk of leakage much increased. Probably 150 tons of putty will be required, and, as new putty is unfit for use, it ought to be made immediately, and when required for use a number of labourers employed to beat it and hand it to the glaziers. The general complaint of the scarcity of artistic workmen is frequently exemplified by glaziers in glazing ornamental glass, which has, since the removal of the excise duty, come into extensive use: we frequently see the ornament placed upside down, and, where the ornament is shaded, the shadow in all directions in the same window, and frequently at the junctions of the squares the figures are so badly arranged and broken as to be a disfigurement instead of a decoration. A few hints would attract attention to the subject, which only requires such friendly admonition to be avoided."—W. H. J.

**STATUES.**—Mr. Calder Marshall has completed his statue of Clarendon, for the new Houses of Parliament, and Mr. Foley his statue of Hampden for same place,—both very successfully. Mr. Edward Davis has finished the model for the bronze figure of the Duke of Rutland, to be set up in Leicester.

**GLASTONBURY ABBEY.**—The interesting ruins of Glastonbury Abbey, the abbey barn, &c., are to be sold by Mr. Frederick Chinnock in the course of a few days. An illustrated catalogue has been published, which is very superior to attempts of this kind generally.

**BUILDERS' BENEVOLENT INSTITUTION.**—The annual meeting of this charity was held on Tuesday last, at the London Tavern, Mr. Cubitt, M.P. in the chair, when the secretary read the report for the past year, from which we are glad to perceive that satisfactory progress has been made. The amount received in donations and subscriptions for the year ending June 1850, is 1,028l. 15s. 6d., inclusive of 400l. subscribed at the dinner on the 4th of June, with the first annual subscription of 20l. from Col. the Hon. E. G. D. Pennant, M.P. The profit derived from the ball in January last amounted to 98l. odd. Besides the four pensioners elected in October last, and a poor widow who died a few days after her election, the directors have resolved on another election of five pensioners in October next. The present funds of the Institution are 1,100l. stock to the relief fund, 500l. to the building fund, and balance at bankers 229l. odd.

**LANDLORD AND TENANT.**—At the Oxford Circuit it has been ruled that a written agreement to let and to build may be verbally rescinded by mutual agreement. The jury assessed the damages contingent at 20l., so as to "prevent the necessity of another trial, should the Court above differ from this decision."

\* For a development of the project see the *Ecclesiologist* for August.

**SCENERY AT ROYAL ITALIAN OPERA HOUSE, COVENT GARDEN.**—Halévy's very interesting opera, *La Juive*, has afforded to Messrs. Grieve and Telbin an occasion to produce some beautiful scenery, and to Mr. F. Gye, the able director, an opportunity for the display of taste and knowledge in the costumes and arrangements. The action is laid in Constance, in the fifteenth century, and the whole is contrived to give a vivid impression of the times. The first scene is a good piece of domestic Gothic: the turret on the left, with small gables round the roof, and the well are capitally drawn. A wood scene in the third act, with tent, or horizontal canopy, on the left hand side, with the picturesque groups brought before it, is exceedingly effective.

**PLANS OF SLAUGHTERHOUSES.**—Out of thirteen sets of plans for public and private slaughterhouses, offered for competition, containing excellences of a varied character, the directors of the Islington Cattle Market and Abattoir Company have decided upon awarding their premiums for a public slaughterhouse to Messrs. Ellis and Hussey, and for a private one, to Mr. T. Turner, of Bucklersbury. We do not exactly understand this decision, having previously been made to understand that an ingenious plan by Mr. Gooch was selected.

**NEW CHURCHES.**—At Lambeth two new churches are about to be erected, one to be named St. Thomas's, and the other St. Andrew's. The first stone of a new church was laid at Gravesend on the 24th ult. Of the cost, about 2,000l. have been subscribed, and Lord Darnley gave the site, besides a donation of 200l. A large sum is still required. The first stone of a new church was laid last week in Victoria-road, Kensington. The site was liberally presented by H. L. Valtton, Esq., the proprietor of the adjoining estate.

**BLACKFRIARS BRIDGE.**—The fifth arch from the north side of this bridge appears to have sunk to some extent, and means are being taken to secure it from further danger.

**THE BUILDING IN HYDE PARK.**—The contractors have begun, and are proceeding vigorously.

**LORD WARD'S PICTURES.**—About 120 pictures, collected in Italy and elsewhere by Lord Ward, have been placed in the great room of the Egyptian Hall. We believe it is Lord Ward's intention to make them accessible to the public.

**THE NEW HOUSE OF COMMONS.**—With the view of improving the acoustical properties of the chamber, a temporary ceiling has been formed, which considerably reduces the height of the apartment. It is in its central compartment horizontal, with sides and ends inclining downward; the former being 8 feet below the level of the previous ceiling, and the latter 13 feet 6 inches. We are told that the hearing is certainly improved; at the same time, the quantity of light admitted has been materially diminished, the upper half of all the windows being contained in the space between the new ceiling and the old. We must look into the matter.

**EXETER-HALL.**—Considerable alterations are about being effected in this building, with a view to remedy defects complained of in its capabilities for sound. The raising of the present flat ceiling, giving it an arched form, free from unnecessary projections, the removal of the large square pillars at the gallery end of the hall, and throwing back the organ and wall behind it, are among the principal improvements which have been sanctioned by the directors and shareholders.

**FILTER FOR SEA-WATER.**—M. Cardan described at the Academy of Sciences a new system of filtering intended to make sea-water drinkable. The apparatus consists of a syphon, the long tube of which is filled with powdered charcoal.

**INSTITUTION OF MECHANICAL ENGINEERS.**—A general meeting of the members was held on Wednesday in last week at Birmingham, Mr. McConnell in the chair, when papers were read—by Mr. W. Smith, on condensation of steam in Staffordshire engines, and improvements in them; by Mr. Archd. Slate, on a blowing engine working at high velocities; by Mr. J. A. Shipton, Manchester, on a new reciprocating engine; and by Mr. T. Thorneycroft, on the form of shafts and axles.











# The Builder.

No. CCCXCII.

SATURDAY, AUGUST 10, 1850.

**W**E want to do two things: first, to mention the partial completion of Mr. Britton's Auto-Biography for the subscribers to his testimonial; and, secondly, to reply to two or three earnest seekers for advancement, labouring under difficulties, who have recently addressed us,—young and anxious men aspiring for victory, but fearful of the battle, not for want of courage, but of arms. Loudly we sing with Wordsworth,—

"O! for the coming of that glorious time,  
When prize-knowledge as her noblest wealth  
And lost protection, this imperial realm,  
While she exalts allegiance, shall admit  
Like obligation in her part to teach  
Them who are bound to serve her and obey;  
Finding herself by statute to secure  
For all the children whom her soil sustains  
The rudiments of letters, and inform the mind  
With moral and religious truth,  
Both understood and practised."

The subject of our first purpose will effect our second: the Auto-Biography of Mr. Britton, and the analytical account of his works attached to it, will serve to show, to use the writer's own words, "what may be effected by zeal and industry, with humble talents, and without academic learning." By energy and industry, clear-headedness, method, and singular powers of arrangement, Mr. Britton contrived to emerge, unfriended and uneducated, from the menial position in which circumstances placed him to begin the world, and originated and carried out a long series of valuable works, which have had a most important influence on various branches of art, and have entitled him to the gratitude of the whole community. Look at the miserable cot in which he was born at Kingston, Wiltshire,\* on the 7th July, 1771, and which had a better aspect than most of its neighbours, as the walls were "rough-cast" and white-washed. The roof was thatched: one room served for parlour, and kitchen, and hall, and this was 6 feet 6 inches high, with a large beam beneath the ceiling. His father was a baker and maltster; was afterwards ruined, and lost his senses. Our author had but little schooling, it would seem, and much bad example. At sixteen he was sent to London, and was apprenticed by an uncle to Mr. Mendham, of the Jerusalem Tavern, Clerkenwell, where he was daily employed for ten or eleven hours in bottling, corking, and draining wine in the gloomy, cob-webbed cellar represented in the volume. He had no time for reading but by stealth, had ill health, and no encouragement to get information. He grew desponding, and his health becoming worse instead of better, his master ultimately gave up half a year out of six years' service, presented him with two guineas instead of twenty promised, and sent him into the world to shift for himself as he best could. Towards the termination of his apprenticeship, he became acquainted with Mr. Essex (father of the present well-known painter in enamel of that name), who lived by painting figures on watch faces; and at Mr. Essex's shop he first met Mr. E. W. Brayley, with whom since he was ever been closely connected. He entered

into partnership with Mr. Brayley to publish a satirical ballad, called "The Guinea Pig," written by the latter, and to this he affirms are to be attributed "The Beauties of England and Wales," "The Cathedral Antiquities," "The Architectural Antiquities," and various other publications.

Between the time of his release from the cellars and the adoption of literature as a profession, he experienced seven years of vicissitudes and hardships.

"In very poor and obscure lodgings, at eighteen pence per week, (he says), I indulged in study; and often read in bed during the winter evenings, because I could not afford a fire. When my finances allowed I frequented free-and-easy, odd-fellows', and spouting clubs; but my expenses never exceeded sixpence a-night at any of these associations of smokers, drinkers, and convivialists. Knowing the value and truth of the maxim, 'a penny saved is a penny got,' I abstained from laying out money on any article not absolutely wanted, particularly on beer and spirits. These associations led to debating societies, then very numerous and popular in London, and to private theatres and lectures; but the last were very rare. Some of these pursuits and associations were not merely amusing for the time, but became ultimately of great benefit, as conducive to mental improvement, to correction of manners, language, and personal deportment, and also tending, in some degree, to cure a nervous timidity and shyness which belonged to my natural disposition."

He journeyed on foot to Plympton, a distance of 216 miles: returning, he endeavoured to obtain the situation of cellarman, at the White Hart, in Bath, but failed and came back to the metropolis, almost penniless, shoeless, and shirtless. He was then employed as cellarman at the London Tavern, where he was in the cellar from seven in the morning till eleven at night, but could only remain three months, and then engaged as clerk and cellarman with a widow in Smithfield. His next engagement was with Mr. Simpson, an attorney, with whom he continued three years, at 15s. a week. "With this small income," he says, "I felt comfortable and happy; as it provided me with a decent lodging, clothes, and food, and with the luxury of books. Having but little writing for my master, who neither had, nor was qualified to execute, much business, I was enabled to devote time to reading; and out of two hours for dinner, I could easily appropriate more than one to booksellers' shops and stalls, by which I acquired a progressive knowledge of 'the trade,' as well as of the value and contents of books. In the evenings I frequented the clubs and societies already referred to, and formed connections and even friendships with many persons devoted to similar pursuits."

The death of Mr. Simpson led him to Messrs. Parker and Wix's, of Hatton-garden, where he obtained 20s. a-week: while there he joined a debating society in Coachmaker's Hall, where he made several acquaintances. We need not, however, follow our old friend farther in his career: he was now beginning to feel his way, and in 1799 he published his first acknowledged and independent work, "The Enterprising Adventures of Pizarro!" From that time to this, a period of fifty-one years, he has been constantly engaged in literary occupation, the results of which are well known to most of our readers. "The Beauties of Wiltshire," was begun in 1801; the "Beauties of England and Wales," in conjunction with Mr. Brayley, in the same year; the "Architectural Antiquities" in 1805; and the "Cathedral Antiquities" in 1814.

In 1845, as our readers may remember, a subscription was commenced, to present to Mr. Britton a testimonial of appreciation of his many useful labours; and it was in return for this that he undertook the autobiography now before us. This has extended itself to two fully illustrated volumes, consisting of three parts. The first, at present incomplete, consists of the narrative of his life, with incidental notices of men and events; the second part is entirely occupied with an analytical account of his various works, carefully written by Mr. T. E. Jones, his secretary for fifteen years; and the third part contains several miscellaneous essays, by the author, on various subjects, and some anecdotal matter.

We extract the following curious information from the concluding observations of the second part:—

"In the five volumes of the 'Architectural Antiquities,' the author had 30l. per number for the first four volumes, with 10l. additional for such numbers as were reprinted, to meet an increased demand. The fifth volume requiring much greater research, his remuneration was increased to 50l. per number; and the total so charged by him amounted to more than 1,800l., during a period of twenty-one years. The sale of the four volumes was profitable in its result from the commencement; whilst that of the fifth, and most elaborate, was uniformly unsuccessful. At the time of Mr. Taylor's death upwards of 7,000l. had been divided between the partners as profit on the four volumes; whilst the fifth had barely paid its own expenses. The stock, coppers, &c., of the whole were sold together; and the final balance-sheet showed a general net profit of about 9,800l. (from 1805 to 1826), the author's share of which was 3,266l. Large as this sum appears, when added to the payment for authorship, it is obvious that, had the same amount of talent, labour, and expenditure, been employed in trade or commerce, a greater return might have been realised.

The 'Cathedral Antiquities' belonged to the same parties and in the same proportions; but Mr. John Le Keux was admitted, during the progress of the work, to one-seventh share of the profits. The author was allowed 50l. per number, as a fair remuneration for travelling expenses, collection of materials, directions to draughtsmen, engravers, printers, authorship, &c.; but in the year 1824, when the work had proved unprofitable, he voluntarily allowed 20l. per number to remain upon the credit of the publication, in the hope that it would ultimately be prosperous.\* When the remainder was sold by auction, a loss of more than 400l. had been sustained, which, however, the proceeds of the sale converted into a profit of 2,900l.—an amount barely equivalent to interest on the proprietors' advances, during the twenty-one years (1814—1835) over which they had extended.

The profits on 'Pugin's Specimens' was about 1,400l. This was the joint property of Mr. Britton, Mr. Pugin, and Mr. Josiah Taylor. The first kept the accounts, and charged 150l. for authorship, of which, however, more than 100l. was paid to his friend, Mr. E. J. Willson."

Returning once more to those who have addressed us on the hopelessness of their struggle with the world, we would say, Take heart by what Mr. Britton and others have done, and work on: energy and industry will overcome great difficulties, and remember that now, as ever, "the only road to human welfare is by the old steadfast highway of well doing, along which all must travel earnestly, adjusting themselves to whatever weather may from day to day befall. No good time ever came by accident. It is the very law of man's present, as of his ultimate salvation, that he shall work it out with a sacred 'fear and trembling,' with zealous, undaunted effort, with daring and exalted enterprise. That fable of the twelve stupendous labours of the

\* The 20l. per number was, however, finally abandoned.

\* This village was also the birthplace of John Aubrey, the first Wiltshire antiquary.



giant Hercules is the type of all human doing and success." The only good time we are justified in hoping for is that which we are capable of making for ourselves.

#### ON THE BUILDING OF WADHAM COLLEGE.

THE quadrangle of Wadham College, together with the chapel and library projecting from it eastward into the garden, forms one mass of building, which was begun, finished, furnished, and occupied, between the 9th of April, 1610, and the 4th of September, 1613, in the reign of James I.

It was built on part of the site of the Priory of Austin Friars, which was founded late in the reign of Henry III. about the year 1268; and many architects, professional as well as amateur, have affirmed, that the chapel, at any rate, cannot have been erected in the reign of James I., but must be the remains, wholly or in part, of the Augustinian edifice, which is said to have been very beautiful.\* The windows of the chapel, and the pillars and arches which support the roof of the ante-chapel, supply the chief arguments in defence of this assertion; for few will deny that the windows of the ante-chapel are sufficiently in keeping with the date assigned to them.

It would be presumptuous in any one but a professed architect, much more in a person whose knowledge, even of architectural language, is very small, to try to refute this assertion, so generally and so confidently made, by referring to the mouldings of the chapel windows, or to the proportions of the arches in the ante-chapel, however strong may be his opinion that these parts of the building, like the rest, give tokens of a debased taste. Nothing but historical and documentary evidence can be conclusive on such points; to this, therefore, we will turn at once.

Now, besides the statement made by Antony à Wood,† that the buildings of the Priory "chiefly stood on the south part of the College, and southward from it," that is, between the College and Holywell-street, it may be clearly shown from a deed‡ of the Augustine Friars themselves, made in the year 1456, that their chapel did not stand on the same site as the present chapel of the College. The dimensions also of the former chapel, as recorded by William of Worcester,§ do not agree with the present building.

It must be granted, then, that the present chapel does not stand upon the same foundations, and is not of the same size as the former one. But may not the old materials have been used in its construction? In particular, may not "some of the identical windows of the Augustinian Chapel have been preserved?" || Certainly, Antony à Wood's statement, that "all the ruinous buildings of the Priory" were "pulled down and levelled with the ground,"¶ as soon as the site had been purchased by the foundress, is not inconsistent with the supposition that the old materials were used, as far as they were worth using, in the structure of some part of the college. But it is also recorded by Wood\*\* that Thomas Cawarden [or Cawerden], Esq., who obtained from the Crown a lease of "the ground and tenements," shortly after the dissolution of the Priory, "converting every thing to his profit, carried off the stone, materials, trees, &c." This lease was granted on the 20th of December, 1541, for the term of one-and-twenty years. But even if the lessee did not retain the premises in his hands after the 16th of May, 1552, 6 Edw. VI., when the whole site was sold by the Crown to Henry Duke of Suffolk, and Thomas Duport, gentleman, he still had ample time before this alienation to remove and dispose of every thing of which any profit could be made. And if Wood's account of his proceedings is to be trusted, we can hardly imagine that in 1610

there was remaining even any good ashlar, much less any entire chapel window, which could be worked up again into the new edifice.

This reasoning might be confirmed by an examination of the numerous leases into which the whole site had been divided during the reign of Elizabeth, and which were still existing when it was bought by the foundress.

There is preserved, however, in the archives of the college, a folio volume of about 144 leaves in a parchment cover, which must be admitted, by any careful inquirer, as conclusive evidence on the point in question. It is "A note of money layde out about the buylding of Wadhame Colledge from the nyth of April 1610." After the first three pages, which are occupied with sundry preliminary payments, it contains a detailed account of the whole expenditure week by week, giving the names of the workmen and labourers employed, stating the nature and quantity of their work, and comprising also the purchase of all materials of every kind. And in the course of it the cost of each separate window of the chapel, as well as of the hall and ante-chapel (in which the windows are uniform), is set down so plainly as to leave room for no doubt or dispute.

The chapel has five windows on each side. One of these was made in April and May 1611, at the cost of 6*l.* 10*s.* which was paid in three instalments. No further entry concerning them occurs during that year. In 1612

(new style) they were resumed, and the remaining nine were finished by the 1st of April at the cost of 6*l.* each window, paid on the completion of each. The great east window was begun in April 1612, but was not quite finished before the following September.\* It cost 22*l.* 10*s.* The name of the mason who made them was John Spicer.

The ante-chapel, hall, and common room contain eighteen windows of uniform design. They were begun in December 1611, and finished in May 1612, at the cost of 3*l.* 18*s.* each. The bay window of the hall, made in March 1612, cost 7*l.*: the large window cost 10*l.*, and was made in May and June of the same year. The mason employed was William Arnold, whose name is most frequently written Arnold.

The window at the east end of the library was made in August 1612, by Edward Arnold (or Arnoll), for 9*l.*

In order to corroborate these statements, and at the same time to give a specimen of the document quoted, the account for the week ending Feb. 8, 1612 (new style), is here faithfully transcribed. Many a week with more varied items might have been chosen, especially in the summer months; but the transcript would have been the longer; and it is hoped that this one will be sufficient as a specimen of the book. Subjoined to it are several particulars, of more or less interest, extracted from various parts of the volume.

1611.

#### The Charge from the 3d till the 8 of february.

	Ric. Bud, 10 <sup>l</sup> , & 9 foote, at 16 <sup>d</sup>	..	..	..	0	14	1	
	Tho. Napp,* 4 <sup>l</sup> , & 11 foote	..	..	..	0	6	3	
Car. Stone.	John Arden, 3 <sup>l</sup> , & 7 foote	..	..	..	0	4	7	
	Ric. Guden, 6 <sup>l</sup> , & 8 foote	..	..	..	0	8	5	
	Walt Knight, 2 <sup>l</sup> , & 5 foote	..	..	..	0	3	1	iiij <sup>l</sup> . xv <sup>l</sup> . vj <sup>d</sup> .
	John Hips, 12 <sup>l</sup>	..	..	..	0	16	0	
	Nic. Dier, 5 <sup>l</sup> , & 7 foote	..	..	..	0	7	3	
	John Wiltshire, 13 <sup>l</sup> , & 3 foote	..	..	..	0	17	7	
	Hugh Allen, 13 <sup>l</sup> , & 10 foote	..	..	..	0	18	3	
fremasons	Wm Arnoll, for making a window for the hall	..	..	..	3	18	0	
taskers.	for 62 foote of ashler	..	..	..	0	5	2	
	John Spic <sup>r</sup> , a window for the chappell..	..	..	..	0	6	0	
	John Beale, 78 foote of ashler	..	..	..	0	6	6	xij <sup>l</sup> . xj <sup>l</sup> .
	Pet <sup>r</sup> Plomer, 56 foote of battens <sup>d</sup> , at 3 <sup>d</sup> .	..	..	..	0	14	0	
	for 77 foote of ashler	..	..	..	0	6	5	
	John Spic <sup>r</sup> , 155 foote of ashler	..	..	..	0	12	11	
	for making a dore	..	..	..	0	8	0	
Quarry men.	fidler, 19 <sup>l</sup> , & 11 foote, at 16 <sup>d</sup> .	..	..	..	1	6	3	
	for ridding a quarry	..	..	..	1	15	0	vij <sup>l</sup> . xvij <sup>l</sup> . iij <sup>d</sup> .
	Snedmore, 32 <sup>l</sup>	..	..	..	2	2	8	
	Shillingworth, 25 <sup>l</sup>	..	..	..	1	13	4	
fremasons by	Arnold's weekeley wages	..	..	..	0	10	0	
the day for the	Peeter Plomer, 5 days, & dim.	..	..	..	0	9	2	
chimneyes.	John Plomer, 5 dayes	..	..	..	0	5	6	
	Edward Ever, 6	..	..	..	0	8	0	
	Edward Ledwin, 4	..	..	..	0	5	4	iiij <sup>l</sup> . j <sup>l</sup> . viij <sup>d</sup> .
	Wat. Ledwin, 3	..	..	..	0	4	0	
	John Clavy, 3	..	..	..	0	4	0	
	Marks Bolston, 3	..	..	..	0	4	0	
	Tho. Norrice, 5	..	..	..	0	5	0	
	John Hucker, 5	..	..	..	0	6	8	
Laborers.	Wm. Lovis, 6 dayes	..	..	..	0	5	6	
	Humfry bevis, 6	..	..	..	0	5	6	
	Steven Marks, 3 at 8 <sup>d</sup> ..	..	..	..	0	2	0	
	Ric. Wms., 3	..	..	..	0	2	0	j <sup>l</sup> . xj <sup>l</sup> . iij <sup>d</sup> .
	John Austin, 6	..	..	..	0	4	0	
	Greg. Sawell, 6	..	..	..	0	4	0	
	Edward Collins, 6	..	..	..	0	4	0	
	Rob. Hucker, 5	..	..	..	0	4	2	
bords.	John Barnard, for bords, 1,348 foote, at 9 <sup>d</sup> . 8 <sup>d</sup> .	..	..	..	6	10	0	vij <sup>l</sup> . x <sup>s</sup> .
Carpent <sup>r</sup> .	Thornton, for pitions,* in accompt.	..	..	..	2	0	0	ij <sup>l</sup> .
	Medcalfe, in accompt.	..	..	..	2	0	0	ij <sup>l</sup> .
Smith.	Slatford, for 11 p.* of hings, at 14 <sup>d</sup> .	..	..	..	0	12	10	xvij <sup>l</sup> . x <sup>d</sup> .
	For 5 p.* at 12 <sup>d</sup> ..	..	..	..	0	5	0	
Clay.	Arthur psons,* for 23 load of clay, at 10 <sup>d</sup> .	..	..	..	0	19	2	xix <sup>l</sup> . iij <sup>d</sup> .
Timb <sup>r</sup> Car.	Alex. Hill, 6 load	..	..	..	6	0	0	vj <sup>l</sup> .
	Sum, 41 <sup>l</sup> . 9 <sup>s</sup> . 7 <sup>d</sup> .							

\* In all these places, the fall of the letter p in the MS. is marked so as to indicate a contraction. The words meant are, Napper, partitions, pair, and Parsons.

1. The first page of the account contains payments made to various workmen for coming to Oxford, but there is nothing to show from what place they came.

"Imprimis, payd William Radbyrde for three dayes cominge to Oxforde .. iij<sup>l</sup>"

"Payd Henry Chaffy and his man for three dayes cominge to Oxford .. vij<sup>l</sup>"

\* The last entry concerning it is on 20 Sept. 1612: "for tonning 3 of the chappell great window, 17 foote. Tonning of windows occurs elsewhere; as on 1 Feb. 1612 (new style), "for tonning 614 window lights at 2*d*. 4*s*. 8*d*."

\* See Ant. à Wood, quoted (after Stevens) in the last edition of Dugdale's *Monsieur Angliorum*, Vol. VI., Part. III., p. 1506.

† Hist. Coll. p. 563, ed. Gutch.

‡ Cited from the *Rolls of the Chancery*, by Kennet, in his *Parochial Antiquities*, Vol. II., p. 401, ed. 1818.

§ He says the length of the choir was 60 paces, the length of the nave 66 paces, and the breadth of the church 40 paces.

|| So "some persons are inclined to believe." See *Memorials of Oxford*, p. 2.

\* Hist. Coll. p. 263.

\*\* In "Dugdale," as before, p. 1596.



"Paid George Spracket to bee wrought out at his coming to Oxford .. xx" "  
 "Paid John Bishop upon an accept to be wrought out .. xx" "  
 "Paid William Arnoll's three men for theyre coming to Oxford .. ix" "  
 "Item, gave them xij<sup>d</sup> in beare w<sup>th</sup> I agreed w<sup>th</sup> them .. xij" "

The whole sum paid in this way was 10*l*. 8*s*. It appears from subsequent entries that all the workmen who received it were masons.\*

2. At the beginning of the work several yoke of oxen, with carts or waggons, under the charge of four "plowmen," were sent up from Merifield, the seat of the Wadhams, near Ilminster, in Somersetshire, to help in drawing stone and other materials. The third page contains the expenses of the journey, amounting to 3*l*. 8*s*. Nearly a week was spent in it; the halting-places for the nights being Yeovil (spelt *Evill*), Mere, Amesbury, Hungerford, and Abingdon. The oxen, however, seem to have done but little service, and in November 1610 they were all sent home again, having been in Oxford barely six months.

3. The quarries from which the stone for the College came, are not determinately fixed by these accounts. Some was had from Burford, and masons were sent there to work it. For instance, under the date of 25th January, 1612 (new style), the following entries appear:—

"Wm. Blackshaw for a month's work at Burford .. 2 0 0	
"for masons his sonne for a month there .. 1 12 0	iiij <sup>d</sup> . j <sup>d</sup> . viij <sup>d</sup> ."
"for masons by the day, for hords to make moulds .. 0 1 8	
for 2 tun of stone at burford quarry 0 8 0	

Again on 4th April, 1612, under the head of "boatmen" we find "John Smith for 1 boat load of burford stone, 7*s*. 6*d*." Probably this stone was employed for ridge-stones of the roofs, which seem to be called "crests" or "crests" in this volume.†

A considerable quantity of stone, called, for the most part, "rag-stone" or "wall-stone," came by way of "High Bridge." On 22nd December, 1610, we find these entries, under the head of "stones brought":—

"pd. Triplow for 27 load of Ragstone brought to high bridge at 12 <sup>d</sup> the load .. 1 7 0	
"Alexander Hill for carr. 27 load of Ragstone from high bridge to the Colledge .. 0 18 0 "	

But by far the largest quantity was got from quarries opened in ground belonging to Magdalen College, the name of which is first found in the first week of July, 1610. Payments were made from time to time to several persons for the purchase of stone, or for the use of quarries in various places. In particular, a Mr. George Brome received 3*l*. 15*s*. quarterly from the beginning of the work till Michaelmas 1612, if not later, as "quarry-rent," or rent "for quarry ground." It seems, however, that the President and Fellows of Magdalen College liberally allowed stone to be taken from their quarries for the work without making any charge for it. No entry of money paid to them can be found; but at the end of the year 1610 appears the following item:—"For books given to Magd. Coll. for there quarries, 20*l*."‡

4. Oak timber was purchased out of Cumnor Wood from Lord Norris, the ancestor of the Earl of Abingdon. Entries like the following are of frequent occurrence:—

"Pd. to my L. Norrice for 100 of oaks .. 133 6 8 "	
"To Mr. Munko L. Nor. his steward for oks .. 5 0 0 "	
"Pd. to the L. Norrice his woodward for Ernest for 210 oks .. 8 16 8 "	
"Pd. for felling the 27 great oaks at 6 <sup>d</sup> . a peice .. 0 18 0 "	
"Pd. Thomas Rode for carraig of 36 tunne of timber from Cumner woods to the water side .. 2 5 0 "	
"Pd. for carraig of 7 boatload of timber at 2 <sup>d</sup> 1 <sup>d</sup> .. 0 14 7 "	

\* Similar items, likewise concerning masons, are found afterwards; as on 13th July, 1611, "Petr. Petr. (probably an error for Petr. Plowm.) and his company for coming up, 2*l*. 8*s*."

† See under 24th August, 1611:—"Pd. Blackshaw on an account for crests to bee brought to the colledge, 3*l*."

‡ Trinity College also appears to have done something to forward the work. Under date of 24th August, 1611, we read:—"For wyne given to the president and fellows of Trinity Colledge, in way of gratuity for the grove, 4*s*."

"Tho. Brayden for carrying 10<sup>l</sup> of timber from highbridge .. 0 13 4 "

5. Antony à Wood tells us that the first stone was laid with much ceremony on the 31st July, 1610. In that week occur the following items:—

"for 3 barrels of beere .. 1 4 0	
for cakes bisket & prune bread .. 1 1 10	vi <sup>d</sup> . viij <sup>d</sup> . x <sup>d</sup> ."
for musick .. 2 0 0	
for wine .. 1 10 0	
for servitors .. 0 12 0	

6. The chapel, dedicated to St. Nicholas,\* was consecrated on the Feast of St. Peter,\* 29th June, 1613; when an entertainment seems to have been given, far more costly, considering the relative value of money, than anything that is usual in these days. The item runs thus:—"pd. for diet at the consecration of the Chappell. .... 83 15 0."

7. It might be expected amidst all this minute information, that the name of the architect, and the amount of his remuneration, would certainly be found. No payment, however, to any person, for designs or plans of any kind can be discovered. The word "architect" does not occur, nor any phrase which, according to modern usages, would be equivalent to it. The expression which comes nearest to it is "head workman," which occurs once, and once only, at the second page of the book, in the account for the week ending Saturday, 26th May, 1610, being the first of the weekly accounts. "Paid the head workman for wages from the beginning of the worke iiij<sup>d</sup>." The account for the next week begins thus: "Imprimis William Arnolls weekly wages, xx." In other weeks we find the same item under various heads, mostly among the masons, sometimes with the layers, and once certainly (whether intentionally or not) among the labourers. And there can be little doubt that "the head workman" and William Arnoll (or Arnold) are one and the same person. It was he who made the windows for the hall and ante-chapel, and he and his men (who are often thus mentioned) seem to have been the masons chiefly employed in building the quadrangle. William Arnoll received 1*l*. as his "weekly wages" to the 10th of October, 1611; from that day to the 20th of June, 1612, he received 10*s*. a week; after that date (by which time, he it observed, the hall windows were quite finished) his name does not appear in the book. Several other persons of his name, probably relatives, were employed as masons from the beginning of the work; one of whom, Edward Arnoll, succeeded him in the receipt of the weekly wages of 10*s*. up to the 28th of November, 1612, from which time the entry is discontinued. No doubt the work was now so far advanced, that the superintendence of a "head workman" was thought unnecessary.

It is a coincidence, possibly not quite accidental, that the steward, agent, or man-of-business, employed by the foundress, and indeed residing at her seat at Merifield, was named John Arnoll. He assisted in making the purchase of the site of the Augustine Priory for her; and the volume from which these extracts have been made contains evidence that he assisted likewise in superintending the building of the Colledge. Towards its completion, at the end of March, 1613, one of the masons, who had been employed throughout in the carving and more delicate parts of the work, received a gratuity of 2*l*., "given to him by Mr. John Arnoll for his care in the worke."

JOHN GRIFFITHS, M.A.

Wadhams Colledge.

#### ARCHITECTURAL AND ARTISTIC DOINGS IN IRELAND.

THE Royal Irish Yacht Club-house, Kingstown, is just completed; it is situated to the left of the Dublin and Kingstown Railway. The style is Grecian, the plan rectangular, and the total dimensions are 139 ft. 2 in. long by 58 ft. 2 in. wide. The front elevation is composed of an Ionic colonnade, in length 92 ft. 5 in., breadth 8 ft., height 15 ft. 3 in.; the pillars, eight in number, rest upon a plinth 1 ft. 6 in. high, and support an entablature (composed of frieze and cornice only), 3 ft. 6 in. in height, surmounted by a parapet 3 ft. 10 in.

\* In reference to the Christian name of the founder, and to the maiden name of the foundress.

high. The wings at each end are 23 ft. in width, and decorated with antæ, same height as column, and rustics 10 ft. high. A window, with consoles, entablature, and panelled pedestal, and fitted with French sashes, is in the centre of each wing; in the inter spaces of the colonnade are windows with architraves and pedestals only. The piers have single antæ and rustics, carried up to soffit of entablature. The side elevation is composed of four windows, same as those in wings of front, the piers having single antæ and French rustics. The marine elevation is composed of seven windows, between which are panelled piers 4 ft. wide, 15 ft. 3 in. high, and projecting 12 in. The rustics are carried to soffit of entablature, and continued to extreme ends. Two semi-circular bows, 20 ft. diameter, and with three windows each, form the wings. The parapet is balustraded. There is a terrace 180 ft. 3 in. long, and 20 ft. wide, in front of this elevation, which will afford facilities for witnessing the regattas in the harbour and bay. From this terrace there is a flight of steps descending 11 ft. 6 in. to a lower terrace or boat-slip, 2 ft. 6 in. above high-water-mark. The retaining wall is formed of rough hammered black stone, with piers at intervals of about 10 ft.; it is surmounted by a frieze and cornice, with cantilever blocks, and a parapet 4 ft. high: between the piers are circular windows, which light the boat-stow under upper terrace: the cornices, dressings, &c. are of chiselled granite. The interior of principal story is entered by a door from centre of colonnade, leading to a hall 24 ft. 6 in. by 20 ft., decorated with fourteen antæ, 12 ft. 6 in. high, supporting an entablature, with an ornamented panelled coved ceiling over it, surmounted by a semicircular metal dome light, 10 ft. in diameter. From this hall branch two corridors, leading to the apartments on this story, namely, drawing-room, 43 ft. 6 in. by 21 ft.; dining-room, 36 ft. by 19 ft.; private ditto and library, 23 ft. 6 in. by 21 ft.; museum, 28 ft. by 19 ft.; billiard-room, 25 ft. by 19 ft.; committee-room, waiting-room, &c., &c. Contract, 4,000*l*. Exterior is of Roman cement. Mr. J. S. Mulvany, architect; Messrs. Crowe, builders.

The benchers of the Queen's Inns are erecting a new wing to the elevation of the Temple facing Constitution-hill. Contract, 4,000*l*.

There is a new church erecting at Philipsburgh Strand, county of Dublin. The plan is cruciform; length, 135 feet; breadth, 35 feet, clear of walls; transepts, 35 feet by 15 feet; to level of wall plate 35 feet; to ridge of roof, 59 feet: open framed roof. Tower (not at present erecting), 22 feet square by 85 feet high. Thickness of walls, 2 feet 8 inches. The flanks and angles to have buttresses. Cost will be about 1,200*l*, without the tower walls of hammer-dressed black stone. The dressings and mouldings are of granite.

There is another erecting at Mullinahone, county of Tipperary, of the same dimensions—the elevation slightly altered. The cost will be about 1,400*l*. Mr. Patrick Byrne, architect to both.

The new church of St. Lawrence O'Toole, Dublin, has been recently opened for divine service. The style is Early Gothic. Interior not quite finished. The tower, which is central on south elevation is at present only carried up to ridge of roof. Walls of rubble, with limestone dressings. Mr. J. B. Keane, architect. Cost, when finished, will be about 2,000*l*.

The Board of Public Works have just commenced a new lunatic asylum at Mullingar, to have 150 cells, which, with dormitories, will accommodate 400 inmates. The style is Modern Gothic; length, 785 feet 10 inches; breadth, 97 feet. Central building, containing master's and matron's apartments, recreation rooms, chapel, &c., is 94 feet 10 inches wide, extends from rear elevation 257 feet; height to level of wall plate, 38 feet 6 inches; to ridge of roof, 61 feet 6 inches. Basement under centre building and east wing: walls of rubble, with Tuillamore limestone dressings. Mr. Mulvany, architect. Contract, 24,203*l*.

The Board are also erecting asylums at Kilkenny and Omagh, nearly similar in style, dimensions, and arrangements to that above specified: of the former, Mr. Geo. Papworth is architect; of the latter, Mr. W. Farrell is architect.



There is a new chapel, church, and infirmary being erected at Grange-gorman-lane, Dublin, in connection with the lunatic asylum, all lately commenced.

The Poor-law Commissioners are erecting poorhouses at Outward; the cost will be 3,500*l.*; Currafin, 6,000*l.*; Tullow, about 3,000*l.*; and additions to Roscrea, 2,500*l.* They have also advertised for tenders for one in Mill-street, Cork.

A monument by Hogan, the Irish sculptor, to the memory of the late Mr. Peter Purcell, of county Kildare, was on Saturday last completed, and fixed in the Metropolitan Chapel, Dublin. It is an alto-relievo of unpolished Italian marble. The pedestal is by Mr. Kirwan, Bolton-street, Dublin. The total cost will be 2,000*l.*

Mr. Joseph Kirk, the sculptor, is in Ennis at present, superintending the fixing of his statue of the late Master of the Rolls, in the new Court-house.

The committee for superintending the monument erected in the parish of Tullow, to the memory of the late Mr. W. Moore, of Moorehill, passed a vote of thanks to Mr. Edw. H. Carson, of Dublin, for his design for it.

#### ON ARCHITECTURAL PUBLICATIONS.

I WOULD make a few observations on those who want a sudden transition in architecture, and on the publications of late years, by which design was marred in its progress; works that by review, and in point of imparting instruction, have, at their respective dates, passed amongst the scientific as faultless and beautiful. The view taken of each subject may be liable to censure; but, as it will be noticed simply in a progressive sense, those who are not desirous of adhering to prejudice, will entertain an opinion with me, that reform is practicable.

To those who want to enter immediately on a new style, I should certainly say "Go on," and still follow up the examples given by Wren, Chambers, and their disciples. Raise a new order compounded of parts of all the other orders; nay, do as Batty Langley did, and be laughed at by sensible men during the remainder of this century. To others I shall simply observe—We ceased to design purely at a particular date; look back and discover when. Commence from that date, but learn all previous thereto, so that progress may be accurate. Servile imitation is bad, but we must go back and learn before we can go forward. In the present state of things, when societies are expending their money and talents on improvement, it is a pity we should be so divided on the truthful point. Let us use that past in England as we use the past in Greece and Rome, and then we will do well in national architecture.\*

The volumes which appeared during the entire of the last and the beginning of the present century, purporting improvements, are very numerous. Replications of them convince the world that they are standard works; but, like Barclay's "Dictionary," it is no matter who is the new editor. The foibles and errors of the parent are transmitted to the child. And so it is in the least known of all scientific arts. Publication followed publication, however, with all the new improvements; until Europe has hoarded up a mass of errors, which, in order to blot out, it would require such another visitation as that of the Saracen on the great library of Alexandria.

These books do not stand in the way of improvement any more than the mouldy tomes in the unpublished section of the Bodleian library prevent the march of modern improvement, or mar the progress of the steam-engine. In fine, they may be made steps by which the student can ascend to a level with other designers; but they cannot raise his science to the position of other sciences of the day. Though he may never reach perfection, still, aiming at perfection is the surest way to get near it. We must get rid of wash and figure, and look forward to material and illus-

tration. We must use the plumb and square constructively; but must not be confined to them in designing. Design and construction must be used harmoniously; not falsely adapting to materials the chimerical flights of design, nor stiffening design by omitting what are only impracticable in construction, through the laziness or ignorance of the artificer. We can look to Nicholson for instruction, and learn practice from his works; but we must remember it is one thing to fulfil the orders of a specification, and another to design the outlines of even a neat residence.

It must be admitted that those works were considered good in their day, and perhaps equal to the age: let us suppose they were superior to the age, and then considered gems of taste. From the short prefaces and addresses prefixed to each engraving, it would seem that the intentions of the authors were good. But, to go back to the proper date, I must commence with Sir C. Wren, and hint that his *Parentalia* was sufficient, in itself, to stagnate the best spirit of improvement, by endeavouring to suit the architecture of Italy to an English climate. From such a work, written by so great a man, full of all the prejudice that a desire for *renaissance* could supply, how was it possible that national taste could escape scandal?

Next came Sir W. Chambers, who endeavoured to make Vitruvius the patron of English architecture. The costly translations of that great man's work are valuable to a student, but almost useless in practice. His adherents, however, have reduced his works to practice; and not satisfied with confining the edifice designed for Pagan worship to a Christian church, they extended the monotonous outline to every building of considerable magnitude. A Roman temple is scarcely suited to any national purpose; still, it is the very finish of all our public institutions. The façade of every exchange, court-house, infirmary, and large library is the prostyle of a temple. A Roman of the golden empire would find himself at home in London.

In the year 1805, a person, named Crunden, brought out a work on "Farm-houses and villas," illustrated with seventy plates; and five years afterwards appeared Miller's publication on the same subject, with thirty-two plates. There is scarcely an atom of difference between these two emanations. In both we find the Italian street palace made convenient for rural hospitality. The numberless little windows, with their impoverished outlines, instantly show that there was no hope for improvement. One villa has the appearance of a market-house, with a basement story for luggage; another looks like a public institution, the officers' apartments being on the ground, whilst the chamber story seems to be a great board-room; and a third has columnar wings and detached offices, which give it the semblance of a blind-asylum, only that the numerous urns along the debased entablature of the inclosure may lead observers to a derivative conclusion—that they may be viewing the best front of a cemetery.

Again, in 1813, we find J. Plaw laying before the world thirty-eight aquatinta plates on "farm-houses and villas;" but on this occasion they are all in the *gothic* style. In the windows he so managed to mix up the circle with pointed tracery, that I am not astonished now at the reason why the circle has been abandoned and gradually allowed to straighten itself until it became a right line. I forget now in which of these three works we get the plans and elevations of a *gothic* church. The rudeness of the work is almost impassable even to an amateur, and still it had a great number of supporters.

Lastly, I mention the work got up by Dearn in 1830. Grotesque, rural *gothic*! "The force of nonsense could no further go." Indeed, it was one of those publications that, by its effrontery and want of common sense, was calculated to bring about a revolution in design. There is a total derangement of every sentiment which, if properly delineated, would produce pleasing results. The idler observer would not like the drawings. But, before this time, Wharton, Bentham, and Milner, following Murphy, began to awaken the English artist to his proper professional course.

F. SULLIVAN.

#### THE CANYNGE SOCIETY, BRISTOL.

THE annual meeting of this society, instituted for the restoration of St. Mary Redcliffe Church, was held on the 30th ult., when the members and their friends dined together under the able presidency of the mayor, Mr. Haberfield. We confine ourselves to some of the business statements.\* The Report, read by the mayor, mentioned the continued liberality of anonymous donors, from one of whom the sum of 250*l.* had been lately received, under the designation of "A Thank Offering," which had justified them in engaging to provide funds for four remaining clerestory windows of the chancel, which part of the work is rapidly progressing, and will in a few weeks be completed.

In closing their Report, the Committee urged "upon every member of the society increased and continued exertions to obtain additions to its numbers and funds, as they are very desirous that the restoration of the south transept should be undertaken as soon as the present contract is completed. The monument of Canynge is there placed, and it would appear the peculiar province of this society to provide funds for the preservation of that part of the church. The exterior wall of the transept is in so dilapidated a state that it is absolutely necessary that strenuous efforts should speedily be made for its preservation; and the committee earnestly solicit the extended aid of the members of this society and their friends, to enable them to accomplish this desirable portion of the work."

The statement of accounts showed that the total receipts for 1848 amounted to 512*l.* 17*s.* 7*d.* and for 1849, 342*l.* 5*s.*, making 855*l.* 2*s.* 7*d.*

Mr. Proctor (as chairman of the Restoration Committee) said, in the course of a lucid address,—Their prospects were cheering in the extreme; the numbers of the members had increased by upwards of thirty this year, making about 260 members—annual subscribers,—and there were twenty donors, also, who had contributed a sum, independent of the subscriptions, equal to 300*l.* Nearly one-third of the north porch was completed—in what way he would rather leave to the architect to describe. He hoped by that time twelvemonth they would see the chancel completely restored, and the chancel thrown into the church. But in order to effect that they would want some assistance, which assistance he by no means despaired of receiving. They would want, also, a stained glass window, for they could not throw it open without glazing the east end, and they could not glaze it with plain glass for two reasons: first, it would not be in accordance with the style of the church; and, secondly, it would not consist with the fact that their worthy mayor had placed in their hands one hundred guineas towards that window. Their friend, Mr. R. Phippen, had forwarded them another 100*l.*, but they wanted a third, and he did not despair of receiving it; and probably the fact of his mentioning it there that day might induce some to come forward and contribute. After these restorations their next object would be to restore the screen. The remains would be an infallible guide, and enable their architect to restore it precisely as it was before. He had no little pleasure in telling them that, on mentioning that want, a gentleman, than whom none was more respected in the city of Bristol, Mr. Richard Poole King, put a check for 100*l.* into their hands. Another, the Messrs. Hare, of Temple-gate, had forwarded them a cheque for forty guineas; so that he considered they were in funds for the completion of all these alterations of the church, with the exception of 100*l.* for the window.

There was one point mentioned in the report, with regard to which he was anxious to stir them up and stimulate them, being desirous that it should be accomplished, and that was the restoration of the south transept. As the Canynge Society it was their bounden duty to commence forthwith the restoration of that portion of the church in which stood the monument of Canynge. In connection with the restoration of that portion of the walls, he was reminded that they had already received an offer from some ladies in the city of a window to put in the church as soon as they could restore the stone work of the transept. They had thus not only the stimulus of their own minds to restore it, but some degree of

\* It is said of Vitruvius, that he was really the first person who took compasses and measure, amongst the rubbish of ancient Rome, to discover the real proportions of the Roman orders. He had no other object in view than to overthrow the debased condition of existing art, and to establish the architecture of his country from the monuments left remaining. It is a good lesson, to all persons desirous of innovation.

\* The whole proceedings are fully reported in the local *Mercury, Mirror, Times, &c.*



courtesy in their minds, as the gauntlet had been thrown down to them by the ladies, who said, if you will put the stone work right, we will put in the glass."

Mr. Gowdn (as architect) was glad to see a marked improvement in the buildings of Bristol generally. It was almost impertinent in him perhaps to say so, but as coming from London he might express an opinion: the restoration of the Exchange, the proposed restoration of the High Cross, and other matters gave him great satisfaction, and redounded much to the credit of Bristol. With regard to their own building, St. Mary Redcliff, they were going on there satisfactorily, and he hoped it would prove so to those who examined it. The North porch, as a piece of work, especially the carving, leaving the architectural supervision out of the question, was equal to anything now in progress. The north side of the clerestory of the chancel was nearly finished; in a week or so they would commence the windows on the south side. The anticipated commencement of the south transept was gratifying to him, apart from professional considerations, because it was the site of the founder's tomb, and one of the most interesting portions of the edifice. There was a beautiful mixture of the Decorated and the Perpendicular in the principal window of this transept; the clerestory windows were unique; the groining and the bosses were beautiful in design. There were particular reasons why they should get as much done as possible next year, because the Archeological Institute intended coming to Bristol then. Many people asked what good archeological societies do in travelling about. One good they did was to make the inhabitants proud of their own buildings. He remembered a small village in Norfolk, where the inhabitants were gathered together, owing to 150 people having come down from London, and they wanted to know what brought them there. They came to the decision that their church must be exceedingly interesting and valuable, and that they ought to take care of it. This was not needed in Bristol. But the advantage in bringing strangers there would be to get many who now knew St. Mary Redcliff only from prints, acquainted with it personally; and, perhaps, they might assist in its restoration. St. Mary Redcliff was a monument of piety, an association of poetry, a miracle of art, and wanted no eulogium or effort to induce the people of Bristol to attach importance to it.

The Rev. M. Whish, Mr. Garrard, Mr. W. P. King, Mr. W. Powell, and others addressed the meeting.

#### ALTERATIONS AT THE HOUSES OF PARLIAMENT.

In granting a vote of 9,400*l.* to defray the expense of alterations in the new Houses of Parliament, the Commons, on 2nd inst., had another long conversation or discussion on the houses generally and on Mr. Barry particularly, in which Colonel Sibthorp, Mr. Hume, Mr. Osborne, Sir D. Norreys, and other members cordially united in running down the architect,—unfortunately, in the present instance, with more show of reason than heretofore. On the acoustical question the Chancellor of the Exchequer remarked, almost in the words of *THE BUILDER* some time ago, that he had found, on inquiry, in the case of churches, for instance, that one church might be admirably adapted for hearing, while in another, built upon precisely the same plan, it was scarcely possible to hear at all. It was, he understood, easy to build an apartment in which a person speaking from a given point, as from a tribune, would be heard in all parts of the room; and he believed that in the new house a person speaking from a particular point would be as well heard as he understood counsel when speaking from the bar of the House of Lords; but he had been informed that it was impossible to build a room in which it could be certainly predicted that the hearing would be equally good in all parts. The committee had felt that they were unable to come to any conclusion without trying experiments upon this subject; and they determined to try the experiment of a boarded roof in the new House of Commons, which, then, gentlemen had seen on Wednesday, and which cost little more than 100*l.* During the sitting on that day several members of the committee endeavoured to ascertain the opinions of members as to whether the hearing was improved or not. He believed that of some twenty or twenty-two gentlemen he had asked, there were of one opinion and twelve of the other. The Chancellor also stated that the evidence of Mr. Reid, Mr. Scott Russell, and Professors Wheatstone and Faraday had been taken by

the committee, but he did not think the latter had gained much knowledge from their evidence.

Mr. D'Israeli repeated the Christian-like proposal made in one of his books some time ago, to make "an example" of some architect by hanging him in *terrorem* to all designers of bad architecture, and in commenting on which at the time he recommended him to begin with Mr. Barry, as the one most in the way of his fellow architects. Mr. D'Israeli oddly enough went on to say that he would recommend the Government to reflect seriously on the fact that no profession had ever yet succeeded in this country till it had furnished what was called "an example." For instance, you hanged Admiral Byng, and the navy increased in efficiency till we won Trafalgar. The disgrace of Whitlock was followed by the victory of Waterloo. We had decapitated Archbishop Laud, and had thenceforth secured the responsibility of the bishops. That principle we had never yet applied to architects, and when a member of that profession was called on to execute a very simple task and utterly failed after a large expenditure of public money, it really became the Government to consider the case, and they might rest assured that if once they contemplated the possibility of hanging an architect they would put a stop to such blunders in future!

The discussion was wound up by Mr. Wakley, who declared he thought the temporary roof had caused a great improvement in the hearing, although they had not yet had a fair trial. He recommended that the new house be hung round with flags.

#### COMPETITION IN THE BUILDING TRADE.

COMPETITION in the Building Trade has reached a lamentable height, and I think you will agree with me that something should be done to stop its further progress. Trade is truly in a wretched state; men are at a loss to know how to act for provision for themselves and families, so voracious and cruel is the evil with which they have to contend. For a builder to live and be honest now-a-days is quite a farce; if inclined to be so, the public will not let him. Competition they must have. Cheapness they will catch at, let it prove ever so bitter or dear. To be in the building trade you must scheme, contrive, turn, twist, beat down the merchant who supplies you, buy your goods no matter from whom, whence they come, or how obtained; the workmen in your employ must be ground down to the last extremity, heedless of the families they have to support; in fact, there must be no scruples of conscience or tender-heartedness, provided you can find the means to do work at a lower rate than your neighbour, and thereby satisfy a deluded public by it being said you are a cheap man. There are many in the trade who coolly (although they know not the trade, either practically or theoretically) guess the amount of a contract from looking at the drawings. Others will cube the contents of a building (a most pernicious practice); others will form an idea from works they have executed before; while the few, like good craftsmen, will go minutely into detail in order to attain their end. A tinker or a tailor, a street-orderly or a dustman, may now compete, such facilities are given by a discerning and an enlightened public to encourage this applauded system.

The system of advertising for tenders is fraught with much mischief, because it enables the class of which I have spoken to be in a position to compete where otherwise they would entirely be shut out: much trouble and perplexity to architects naturally arise from having to do with such characters, and respectable men cannot or will not submit tenders very frequently when this is the case. It is sad to read, as we do, in your journal, week after week, the great discrepancy between tenders. Notwithstanding the advantage in some respects, it is a pity, in another, these amounts should be furnished; not because it exposes those men whose tenders are so ridiculous in amount, but because *THE BUILDER* is a journal which lies not only on the counting-house desk, but also on the table of the drawing-room and parlour, and consequently the discerning

public behold these amounts, and exclaim, "mystery of mysteries, who can fathom the building trade! We must leave off our old ways of giving our work to Mr. A. or Mr. B., who has done it for years, and we must call for tenders by advertisement, for behold what we are likely to be gainers thereby!" These people, however, know not what is behind the scenes: what cheating in quantity of material, beating down trade, and every unfair and artful thing that can be thought of which is resorted to. They forget if they are in trade themselves that the *ignis fatuus* that allures them will generally allure others who deal with them, and that the sting of competition, if it has not reached them, will be quickly with them. If they do not by chance personally suffer, their children surely will. What are they the gainers provided they save a 20*l.* note by crushing those they employ, if they shortly in trade lose a 100*l.* when five or six others crush them? The genuine and the only honest system of trade is "to live and let live," and if this be not done, rottenness and corruption of trade must follow.

Of the system of furnishing quantities, I, with some architects, disapprove; not that I doubt its convenience; not that I could dispute that convenience when selfishness was in the scale; but I object to it on this ground: when such is done, A. and B. and Z. the tinker and the tailor, all, without much trouble, can throw in a tender; but tell these gentlemen no quantities are furnished, they must take their own: they pull a wry face, feel their pockets, and exclaim, "We must give it up; we cannot raise 5*l.* or 10*l.* to pay a surveyor (a respectable and useful class of men) to take out the same; and to do it ourselves, we know not how or where to begin." Then comes the chance for the few respectable men; then it is there is a chance of something near the mark,—the numbers are limited.

WALTER.

#### CHAPEL FOR THE CONSUMPTION HOSPITAL, BROMPTON.

THIS building, founded by the Rev. Sir Henry Foulis, Bart., who laid the first stone under the east window on the 30th August, 1849,\* is specially intended for the use of the patients of the hospital, and was erected in memory of a near and dear relative.

The chapel consists of a nave, 60 feet long and 22 feet wide; north and south transeptal projections, 17 feet wide and 10 feet deep; and chancel, 22 feet long within the arch, and 15 feet wide. The extreme length from east to west is 84 feet. The height internally in the nave is 15 feet to the hammer beam, and 35 feet to the top of the ridge. The interior fittings of the nave are divided into classes, the two first rows of seats eastward being appropriated to the committee of management and officers of the institution. The next seats are for patients in a very weak condition, and requiring the greatest degree of ease; these sittings are therefore separated by arms; the seats are wide, and in other respects large. The next sittings are still wide, and the backs far apart, but without arms; the last seats, up to the west wall, are of the ordinary dimensions of the open seats in churches for those patients who may be recovering, and who may shortly leave the institution. The whole of the interior fittings are of oak, some bearing the arms and crest of the founder: these, happening to form most appropriate decorations, have been freely used in the interior as well as exterior of the building; they are heralically—"Arg. three bay-leaves proper; crest, a crescent argent surmounted by a cross sa.," the motto is—"Je ne change qu'en mourant." The crest has been most frequently used on account of its being applicable to the building—"Christianity overcoming Paganism." The floor under the seats is boarded and made level with the gangways, in order that there shall be no difficulty in reaching the seats by the weak patients. All the other parts of the nave are paved with terra-metallic tiles, red and black: in one portion, between the pulpit and reading desk, the arms, crest, and motto of the founder are laid with Milton's tiles. In the north recess an organ will be placed, the pipes to be

\* The building was consecrated on the 27th June last, by the Bishop of London.





CHAPEL FOR THE CONSUMPTION HOSPITAL, BROMPTON.—MR. E. B. LAMB, ARCHITECT.



within oak-traceried screens on each side of the window. The organ is a present to the chapel. The south transept is at present unoccupied with seats.

The chancel has two sedilia of stone of a florid character, the crockets, finials, and other carving, being combinations of the founder's arms. The crockets, &c., of credence table, are formed of vine leaves and wheat-ears. On each side of the chancel are seats, with traceried fronts. The whole of the chancel is paved with Minton's tiles, in blue, red, and buff patterns. The chancel is separated from the nave by a low traceried screen: this, with the pulpit, reading-desk, and lectern, form a good combination of carved work. The east window is filled with stained glass, not yet quite finished; the other windows of the chancel contain stained glass. Stained glass for the north and south, and two of the nave windows, have also been presented. Other liberal presents have been bestowed by persons interested in the institution.

Adjoining the chapel is a robing-room and bell-turret, seen in our view of the exterior, which shows the west end and south side.

The chapel is approached, from the hospital, by a corridor about 85 feet in length, so that the patients may not be exposed to external air in bad weather. There is also an external entrance from the airing-ground, which can be used in summer.

The roof of the chapel is of deal, open timber framed, hammer beam trussed, with diagonal ties, curved struts, arches, and pendants, the spandrills, &c. filled in with tracery. The whole is stained, and very effective.

Externally, the walls are of Kentish rag, and all the decorative parts are of Caen stone. The roof is covered with old plain tiles, interlaced with terrametallic round-end tiles. The low part of the corridor is of red brick, to correspond with the hospital; and the other part, built to correspond with the chapel, is lofty, gabled, and otherwise rendered more prominent so as to unite, as easily and unobtrusively as possible, with the main building. The floor of the chapel is about four feet above the natural surface of the ground. There will be a grass terrace round the building; and between the buttresses are areas, to prevent the ground coming against the walls.

The contract for the chapel was taken by Messrs. Hopkins and Roberts, for 1,613*l*. The oak fittings were taken for 386*l*. The approach, robing-room, and some other parts of the building were taken by a schedule of prices, but the work has not yet been measured. The accommodation is for about 200 worshippers.

This building was erected from the designs of Mr. E. B. Lamb, architect, and is quite worthy of his established reputation.

#### PALACE OF VENICE, AT ROME. DETAILS OF DOORWAY.

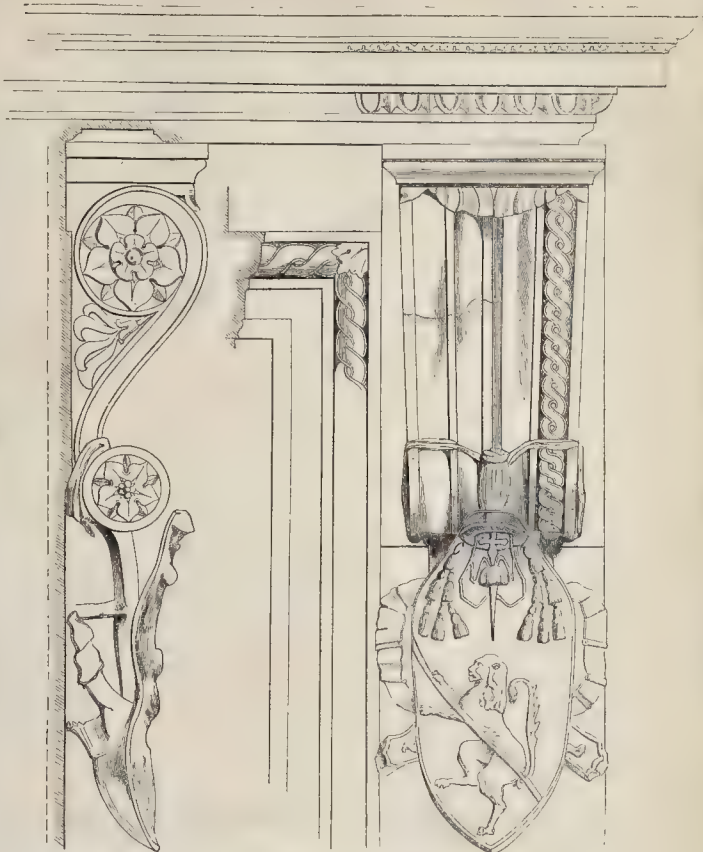
THE Palace of Venice, situated at one extremity of the *Corso*, was constructed, like the Farnese Palace, of materials taken from the Coliseum.

This palace, which was formerly the residence of several popes, was given to the Republic of Venice by Pope Pius IV., on the occasion of the council of Trent. It is at present deserted, like many of the Roman palaces.

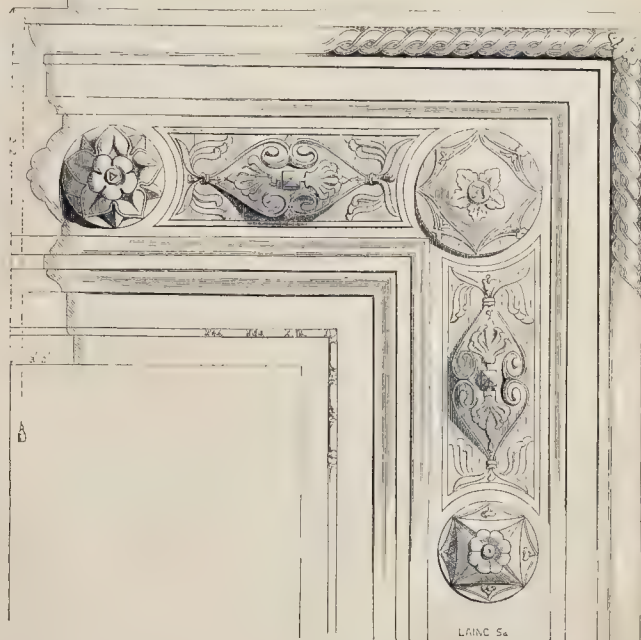
The annexed engravings show the cornice and console of the entrance doorway in the Square; and the sculptured architrave: one-tenth the real size.

**SUPPLY OF PARIS WITH WATER.**—We hear that two companies have recently been formed in Paris for supplying that city with water by pipes to every house, similar to London.

#### DOORWAY, PALACE OF VENICE, ROME.



CONSOLE AND CORNICE.



ARCHITRAVE.

LAMB Sc.



## HYDE PARK OBSTRUCTIVE OF PUBLIC ACCOMMODATION.

It is strange that the want of a thoroughfare through the park, an extent of two miles and a-half from Park-lane to Kensington, has not more frequently been made a subject of animadversion and remonstrance in the public journals,—that two districts so populous as Bayswater and its lateral causeways, together with Knightsbridge, Brompton, and the Gore, should, after ten o'clock at night, be debarred access one to the other by a short traverse of about half-a-mile, or that those important suburbs should have to bear the heavy infliction of a three-mile course (by Park-lane or Notting-hill), and this only in order to secure the liberties of the Crown—in the doubtful seclusion of the park: the liberties of the Crown in this instance are strangely repugnant to the liberties of the people. Of what earthly advantage can it be to shut in these 680 acres of pasture, or to prohibit Mrs. Valley from re-crossing to Kensington Gore after supper with Mrs. Hill at Hyde-park-square?

The deer no longer pasture in the park; the hamadryads have long since deserted it; whether any wood nymphs remain amongst the glades is best known to the police.

It is now twenty years since I saw a dog shot by a verderer near the present receiving-house, because he could not read the notice near the pales,—“No dogs admitted.” But worse and more barbarous is the childish custom which still remains, of closing the barriers by ten o'clock, preventing the man of business, the artisan, or the labourer, from taking the shortest cut home, whether it be after working or feasting.

There ought to be open at all hours at least one leading thoroughfare—suppose from Westbourne-terrace by the bridge over the Serpentine, to Prince's Gate: this would be a central traverse, and a saving of two miles to dwellers of the vicinage!

Often have I seen soldiers and others escalating the spiked iron gates, at the risk of life, to cut off but half-a-mile. This appeared to me then to be fool-hardy, if not needless; but last night, being hurried to get home, I unhappily tried the same expedient at Grosvenor Gate, and, not suspecting that the spikes in the central castings were sharp, I dropped my whole weight downward, having cleared the bristling daggers on the top: the spikes penetrated my shoe, and made a deep contused wound in my foot, which bids fair to keep me long an invalid. I have reason to know that many have been seriously hurt in the same way, but that the police, although cognisant of such facts, confine their reports to the sheet at the station-house. Surely the broad-sheet may effect some change in this matter by exposing the evils referred to in the public press. If the Woods and Forests are determined to persist in their absurd and feudal rights of exclusion, they should advertise the public that the spikes on the rails are whetted, the better to impale trespassers. Indeed, if, in addition to sharpening, they were to poison the points, no one might blame them, provided notices were posted to this effect—“The railings of this park are both sharp and envenomed.”

QUONDAM.

## CONGRESS OF THE BRITISH ARCHÆOLOGICAL ASSOCIATION.

The approaching meeting at Manchester and Lancaster, from August 19th to 24th inclusive, promises well. The patrons are, the Earl of Derby, as Lord-Lieutenant of Lancashire, and the Lord Bishop of Manchester. James Heywood, Esq., M.P., F.R.S., is the president; and the list of vice-presidents, including the High-Sheriff of Lancashire, Earl Ducie, Earl of Wilton, the Earl of Ellesmere, the Dean of Manchester, the Mayor of Manchester, the Mayor of Lancaster, the Mayor of Preston, and the Mayor of Salford, comprises fifty names. The general committee consists of ninety names. The arrangements for the week include—

On Monday, 19th, Examination of the Cathedral; Meeting of the Members of the General Committee; the President's Address at the Evening Meeting; Paper on the Study of Archaeology, and the particular Objects of the Association, by Mr. Pettigrew, vice-president; on the Architecture and History of the Cathedral, by Mr. Ashpitel; on the

Stanley Crest, by Mr. Planché; on the Structure of the Norman Castle in England, by the Rev. J. C. Bruce, M.A. 20th. Excursions to Whalley, Ribchester, &c.; Evening Meeting at Lancaster; Remarks on the History of Ancient Lancaster, by Dr. James Johnson; on the Barges of the House of Lancaster, by Mr. Planché. 21st. Visit to Furness Abbey, Piel Castle, &c.; on the Antiquities of Furness, by Mr. W. D. Haggard; Meeting at Lancaster, in the Evening; on Furness Abbey, by Mr. Ed. Sharpe; on ancient Timber Houses, by Mr. J. Adey Repton. 22nd. Examination of Lancaster Castle; Visit to Hornby Castle; Return to Evening Meeting at Manchester, Papers by the Rev. Dr. Hume, Mr. W. Beaumont, Messrs. Just and J. Harland, and Dr. Wm. Bell. 23rd. Papers by Mr. Harland, Mr. G. J. French, Mr. J. O. Halliwell, Dr. W. V. Pettigrew, Mr. Edw. Pretty, Rev. Sir Henry Dryden, Bart., &c.; Public Dinner at the Albion. 24th. Visit to Cheetham's Hospital and Library.—Account of Cheetham, and his foundation; Papers by Mr. Roach Smith, Mr. W. H. Rogers, Mr. James Thompson, &c., and Close of the Proceedings.

We shall be there to pick up what information we can for our readers, and report architectural progress in the locality.

## CHURCH BUILDING NEWS.

St. Thomas's Church, Woolwich, recently consecrated, has been erected at a cost of about 4,000*l*. It has accommodation for 800 sitters, in open pews. The funds were raised by subscriptions, and the site was granted by Sir Thomas Wilson, who also largely subscribed.—A subscription, says the *Worcester Journal*, will be commenced forthwith for raising funds for building a Chapel of Ease in the parish of Bellbroughton. The rector offers to commence the subscription with a hundred pounds, and a site it is expected will be given in or near the village of Fairfield.—The parish church of Malpas, near Newport (Wales), has been rebuilt on the old site. Mr. Prothero, of Malpas Court, had offered 500*l*. to have it rebuilt near his residence, and although this offer was rejected he contributed 250*l*. to the rebuilding, of the whole cost of which a considerable sum still remains to be made up. The new building is from a plan by Mr. John Pritchard, diocesan architect, in the Romanesque style. Mr. James, of Newport, was the builder. The seats are open—there are no doors—and the roof is also an open one, slightly ornamented. The church is intended to accommodate 150 persons.—The little church of Papworth St. Everard parish has been restored and almost rebuilt, at the expense, chiefly, of the Cheere family. Amongst the windows, which are all new, is an east one of stained glass. The roof is open, as are the seats. The altar-floor is laid with tessellated pavement.—Comberton Church has, through the exertions of the incumbent, been repaired; the pews have been replaced by open seats, and there are still repairs going on.—The Bishop of Lichfield consecrated a new church at Smallthorn, parish of Norton-in-the-Moors, near Burslem, on Friday week. The seats are all free, with open benches, and accommodate 300 persons. The total cost of the church was about 1,500*l*., of which 500*l*. were subscribed by Mr. C. B. Adderley, M.P., who also gave the land for the church and church-yard, and an endowment of 100*l*. for the church.—“We are sorry,” says the *Leeds Intelligence*, “to see that Meanwood Church, which was only consecrated in October last, is at present stripped of the slates. This measure has been rendered necessary in consequence of the imperfect construction of the roof. Loud complaints had been made from the first opening of the church, of cold currents of air descending upon the heads of the congregation; and it was at length discovered, that by some culpable negligence, the space between the eaves and the top of the walls had been left entirely open all round the church. This defect was partially remedied, on remonstrances being made to the architect and the contractor, but still the evil of cold currents of air remained too great to be endured. Attention was then turned to the roof itself, and it appeared that the roof was of so slight construction as to be quite unsuited for a climate like ours. Upon the spars was laid a simple inch boarding, and upon the boarding, without any lime or other substance, were nailed the slates: and this was

the only defence that stood between the congregation and the open air. The boards had naturally shrunk with the heating of the church, the joints of the boards had opened, and the cold air consequently rushed into the church in all directions. It is hoped that both these defects will now be remedied by the measures to be adopted by beam-filling under the eaves, and by thickening the roof with layers of felt between the boards and the slates. We understand that this imperfect construction of roofs is by no means unusual in new churches, and we hope that the attention thus drawn to the subject will put both architects and builders on their guard against such serious mistakes in future. The expense in this case is defrayed by the Misses Beckett, the founders, but it is surely one to which the founders and promoters of churches ought never to be put.”

—St. Matthew's Church, Grosmont, near Whithy, was consecrated on Thursday, in last week. The style is Early English. The design is a porch at the west end of a body without aisles, having a chancel projection at the eastern termination. The porch is built and buttressed with the view of being raised into a tower, to finish with a spire. The church at the sides exhibits three sets of triplet lancet windows between buttresses, and at the east end of chancel a five lancet light. There are no galleries in the interior, and the roof is of the rafter description coloured like oak. The entire length of the edifice is 60 feet, the breadth 40 feet, and it contains 48 pews (216 sittings). The workmanship was by Mr. Stonehouse, of Whithy. The font, formerly belonging to one of the old chapels or cells of this district, is of great antiquity, with a modern pediment and cover. The churchyard is fenced in by a dry stone wall with a coping set in mortar, and a pair of iron gates at the principal entrance, with a wooden gate at the other entrance, the expense of all which, including fitting up and levelling ground and making approaches, amounts to 70*l*. The cost of the church itself was about 1,260*l*, raised by private donations.—The parish church of Lacey, near Great Grimsby, is about to be repaired on a plan already in the hands of the rector.—The 342*l*. subscribed in Cork towards the national monument to O'Connell, which it was proposed to erect in the Glasnevin cemetery, has been diverted to the fitting up of a stained window in Father Mathew's new chapel. The window has been put up by a London house.—The first stone of St. Matthew's Church, in the district parish of St. Paul's, Islington, was laid on Saturday last, by the Rev. John Sandys. The church is designed by Mr. A. D. Gough, architect. It is intended to accommodate 1,050 persons, and 400 of the sittings will be free.

## NOTES IN THE PROVINCES.

THE Masonic Asylum at Croydon has been consecrated, with all due ceremonial.—In removing some damp arches at the Blind Asylum, Park-street, Bristol, on Monday in last week, a mass of brick fell against a central pillar, which, along with other similar pillars, supported an entire range of arches, and the whole were, in consequence, thrown down, burying two men, one of whom was killed.—School buildings are about to be erected for the district of St. John the Evangelist, Durham Down, Bristol, on plans by Mr. Frupp, of that city.—The one-half of Glasbury-bridge, Brecon, is about to be repaired.—The Liverpool merchants have resolved to erect a statue to the late Sir Robert Peel, either in St. George's Hall or some other public building in Liverpool. In two days 650*l*. were collected.—The subscription for the Peel monument at Manchester had lately reached the sum of 4,700*l*. A site for a statue was about to be decided on.—A subscription has been set on foot for a monument, at Leeds, to the same statesman. There seems to be a desire, however, to unite this object with the project of a public hall, some time since started. This hall it is proposed to erect at a cost of 15,000*l*., for the accommodation of 1,500 persons, seated, or three or four times that number standing.—A bank for the Yorkshire Banking Company is about to be erected at Bradford, on a design by Messrs. Lockwood and Mawson, of Bradford, architects.—A new Infant School has



been erected at Kidderminster, from a design furnished by Mr. J. Nettleship, architect. Mr. H. Ankratt was the builder. It is in the Elizabethan style, with sharp-angled roofs and campanile. The principal school-room will accommodate 200 children.

—Mr. George Young, of Sunderland, has contracted to build offices at the main entrance of the Sunderland Dock, to be surmounted by a clock-tower. The Berwick ramparts are again put up for sale by the Government, greatly to the indignation of many of the inhabitants. —At the recent Glasgow fair, Anderson, the Wizard of the North, had an enormous structure, with a frontage 250 feet in length, representing Balmoral Castle. It was walled round, had trees planted in the inclosure, and a terrace ornamented with hot-house and other plants from the Botanic gardens. The cost of erecting this building is said to have been 1,000l. —The town commissioners of Enniskillen are about to purchase a 'first-rate' fire-engine and a graduating fire escape ladder, for safety to the town against fire.

#### MANCHESTER NATURAL HISTORY SOCIETY.

A new wing is about to be added to the museum of this society, consisting of three stories, 62 feet in length. These rooms will be continuations of those on the east end of the building, and when united each will be 92 feet long.

Plans have been prepared by Mr. Thomas Dickson, architect, of Manchester, for covering the entire ground belonging to the society. There is to be on the west end a wing corresponding with that on the east, and these are to be united by a corridor, likewise three stories in height. The rooms of the corridor will be 60 feet long, but when continued with those of the wings will exhibit a stretch of 102 feet in length. In the centre of the quadrangle there is to be a large meeting room about 60 feet in length, lighted from the roof. When the whole shall have been completed the institution will be worthy this great commercial city. At present the museum is the largest in the provinces, and for extent, beauty, characteristic display and attitudes, the collection of birds has long been known.

The collection of quadrupeds, too, although less comprehensive than that of the birds, exhibits many specimens of artistic excellence, all of which are the handiwork of a self-taught man, Mr. Timothy Harrop, taxidermist to the society.

#### THE ARCHITECTURAL EXHIBITION.

The collection of drawings and designs invited by the Architectural Association will be open to the public free on Monday, the 12th. On Saturdays a charge will be made, and we hope to find some few choosing that day for their visit to aid the endeavour.

It contains about 190 drawings, and is a considerable improvement on the collection of last year, although still far from what it should be. Amongst the exhibitors are Messrs. Donaldson, Fergusson, Walters, Scott, Britton, Lamb, Ashpitel, Godwin, Whicford, Christian, Allom, Colling, Andrews, Habershon, Clark and Norton, Ordish, Street, &c.

#### PICTURES BOUGHT BY THE ART UNION OF LONDON.

The prizeholders of the Art Union of London have purchased from the Royal Academy, twenty-three works of art, at the cost of 1,390l.; from the British Institution, eight, 412l.; from the Society of British Artists, thirty-one, 1,040l.; from the National Institution, Regent-street, eighteen, 525l.; from the Water Colour Society, fourteen, 339l.; and from the New Water Colour Society, fifteen, at the cost of 515l., making in the whole the sum of four thousand two hundred and twenty-one pounds, which was banded to the various artists by the honorary secretaries on Tuesday morning last. Several hundreds of pounds have been paid beyond the above amount by the prizeholders themselves.

The various works of art are now gathered together in the Suffolk-street Gallery, and will be opened to the subscribers and their friends on Monday. Mr. E. M. Ward's picture of

"James II. receiving the news of the Landing of the Prince of Orange;" Mr. Linton's "Venice;" Mr. Redgrave's "Griselda;" Mr. Hurlstone's "Lady Macbeth," are the most striking pictures. In the Water Colour Room Mr. Warren's "Our Saviour in the Cornfield," is the leading feature.

#### REPAIR OF ST. STEPHEN'S, WALBROOK.

In reply to a letter in your columns on this subject, I should indeed rejoice if the funds at the disposal of the commission for the repair of this, the *chef d'œuvre* of Sir Christopher Wren, enabled them to do all that is desirable to "London's architectural gem." This would entail buying and removing the house attached to its tower, chipping off its unsightly stucco and working down to the original stone, or possibly refacing it from the ground to the balustrade.

The committee have not, however, found out the way of making 1,000l. do the work of 5,000l. They have consequently decided on doing to the exterior only what is necessary for due preservation; and they hope the remainder of the sum at their disposal will enable them to restore the interior to its best appearance in its best days.

To direct them in this, they have visited most of the churches of Sir Christopher's erection, and have unanimously agreed that every attempt (and they have been many) to alter his original work or to add to his original embellishment has signally failed. They have consequently determined not vainly to try to improve the beautiful building confided to their care, but they will endeavour to restore and to preserve it.

I fully join "Parishioner" in his desire to have both outside and inside made at once complete, and will put his zeal to the test. I will put down twenty guineas for this purpose, and ensure 500l. by collection, if he will do the same. I agree with him that St. Stephen's has claims on the public; it is the best work of England's best architect; its complete repair ought to be a matter of civic pride,—it is almost a national duty. W. F. Rock.

Walbrook.

#### Books.

*The Commercial Hand Book of Chemical Analysis, or Practical Instructions for Determining the Value of Substances used in Trades, Arts, and Manufactures.* By A. NORMANDY, author of "Practical Introduction to Rose's Chemistry," &c. Knight and Sons, Foster-lane.

SOPHISTICATED and adulteration, like other great branches of knowledge, have made wonderful advances in our age of sharp-set acquisitiveness and ingenuity. The science of over-reaching has been brought to its present high state of perfection at least as much by the diligent researches of bargain-hunters and economical screws, as by the initiation of competing tradesmen into all the subtleties of the devil's chemistry, in order to meet the universal demand for cheap articles. An investigation into the darker secrets of trade and art has thus become a scientific pursuit, as useful and as interesting to men of science as are researches into almost any of the more curious secrets of nature itself. The arts of adulteration and sophistication "have invaded the luxuries and necessities of both the rich and the poor—raiment, food, medicine, furniture, the means of life, and the requirements of disease; all that can be mixed, hatched, twisted, ground, pulverized, woven, pressed—all articles of consumption in trade, in manufactures, in the arts—in a word, all that can be made matter of commerce and be sold, is adulterated, falsified, disguised, or drugged."

The object of the present volume is to indicate the various falsifications or impurities which either intentionally, accidentally, or naturally contaminate the various articles met with in commerce, and to enable the trader, manufacturer, miner, or general public, to detect the nature and amount of these sophistications and impurities; or, in other words, to ascertain the real or intrinsic value of such articles.

Hitherto this has been attained only by a

regular analysis by the practical chemist, and several most valuable treatises of chemical analysis have been published; but in general these are far too profound and elaborate to be of much use to the trader, manufacturer, or public generally. Dr. Normandy designs, in the present treatise, and by the aid of such works as those of Rose, Dumas, Ure, and other analysts and chemical authors of note, to simplify the process of analysis and detection as far as possible, so as to enable those who deal in or purchase various articles of trade and manufacture, to judge for themselves of their qualities and value. And in this design we dare say the author has, to a considerable extent, succeeded, although we admit that the precise amount of stupidity or want of tact which his endeavours may meet with on the part of many who may still be clever enough at bargaining, may not easily be estimated. Nevertheless in some instances we think that simpler tests might have been at least suggested concurrently with the more strictly chemical. For instance (although this first instance which suggests itself to our recollection does not refer to our own professional pursuits exclusively), while instructing the head of a family, or other party most likely to be interested, how to digest 100 grains of iodine in one pint of water, and use one fluid ounce of the supernatant liquor, for the detection of fecula or mashed potatoes in 100 grains of bread put into a glass-beaker with one fluid ounce of distilled water,—it might have been incidentally noted that a hot knife, thrust into a loaf of bread, would in a moment indicate the existence at least, if not the precise quantity, of the adulterant. In trade purchases, however, such as those of quantities of white lead, of hydraulic or other cements or limes, of steel, cast-iron, zinc, &c., we do not of course deem such an off-hand way of procedure worthy of anything like special or systematic notice. Something like a strict chemical analysis, however simplified, there must be, in order to form a correct judgment of quality and value. And of such analysis there is no want here. As an example and specimen of the author's mode of treating his subject we may quote some of his remarks on mortars and cements.

Hydraulic mortars and cements are principally mixtures of lime and clay, in proportions which render them more or less susceptible of hardening in water: according to Berthier their composition is as follows:—

	Moderately Hydraulic.			Very Hydraulic.		
Carbonate of lime	89.2	95.8	83.0	82.5	76.5	80.0
Do. of magnesia	3.0	0.4	2.0	1.1	3.0	1.5
Do. of iron	.....	6.2	.....	.....	3.0	.....
Do. of manganese	.....	.....	.....	.....	1.5	.....
Clay or silica	.....	7.8	7.0	15.0	13.4	18.5
					18.5	23.0

As the preparation of hydraulic mortars depends on the composition of the lime-stone employed, it is important to determine by analysis the constituents of the lime-stones intended for the purpose: this may be done in the following manner:—

Take a given weight, for example 50 grains of the lime-stone to be examined, and dissolve them in hydrochloric acid diluted with half its weight of water. The lime, magnesia, and oxide of iron will dissolve, whilst the clay and the silica being left in an insoluble state, may be collected on a filter, washed, dried, ignited, and weighed. This exceedingly simple examination is ordinarily sufficient to judge of the quality of the hydraulic lime which may be produced from it.

If the operator wishes to determine the proportion of the other constituents, the acid solution filtered from the clay and sand, as above said, should be supersaturated with ammonia, which will precipitate the iron in the form of a bulky reddish brown precipitate, which should be collected on a filter, washed, dried, and ignited. The bulk of the precipitate shrinks enormously in drying, and when dry it should be gradually ignited in order to avoid decrepitation.

The filtrate, which contains a great excess of sal ammoniac resulting from the supersaturation of the acid liquor with ammonia, is then treated by oxalate of ammonia, which precipitates the lime in the state of oxalate of lime. This salt may be collected on a filter, washed, and calcined with an excess of sulphuric acid, and from the sulphate of lime obtained the weight of the lime in the lime-stone is calculated: 68 grains of sulphate of lime contain 23 grains of lime, or decimally, each grain of sulphate of lime represents 0.41776 grain of lime: or the precipitated oxalate of lime may be ignited and weighed as carbonate of lime.

Lastly, the magnesia is determined by boiling for a long time the liquor filtered from the oxalate of



ime with carbonate of potash until ammonia ceases to be evolved, by which treatment the ammonia is gradually precipitated in the state of carbonate of magnesia. This precipitate should then be collected on a filter and washed with hot water. The washing should not be continued too long, because carbonate of magnesia is not quite insoluble in water. The precipitate is then dried, and strongly ignited for a pretty long time, in order to expel the carbonic acid: what is left is pure magnesia, which may then be weighed.

Under head of Coal Gas, we observe a quotation from *THE BUILDER*; but our limits only allow us here further to remark, that although this volume has somewhat the air of a trade speculation for the sale of chemical instruments, &c., being published by manufacturers of such instruments, to whom readers are referred for apparatus, the author, who also advertises himself in it as a lecturer on analytical chemistry, appears to have really done his subject justice. At the end of the volume are a glossary of terms and an elementary treatise or appendix on Chemical Classification and Nomenclature,—both of them certainly requisite and useful appendages to such a volume.

### Miscellaneous.

**ELECTRO-TELEGRAPHIC PROGRESS.**—The submarine line from Dover to Calais is so far ready that an experiment in the conveyance of messages is to come off in a few days. It is said to have been already partially tested. *The Mining Journal* avers that application will be made in the next session of Parliament for bills of incorporation for two new telegraph companies, in addition to the one which has just carried its struggle with the old company to a successful issue. The law expenses of the latter for last half-year alone are said to be about 5,000*l*.—"A paragraph," says the *Birmingham Journal*, "is going the round, in which some improvements of the electric telegraph are detailed. So accurately are messages transmitted, that 'dots, commas, stops, accents, and breaks are all in their places.' We beg to submit that this is nothing compared to what can be effected by the telegraph which transmits our Friday evening's despatch from London. The 'stops' last week, were incessant, the 'breaks' continuous, and the transpositions of the most remarkable character. Without shaking the constitution to the base, the Telegraph Company placed the Chancellor of the Exchequer on the Woolsack, and effected quite a revolution in the English language in their report of the proceedings of Parliament. This correctness, however, is not so remarkable as the rapidity with which the operation is performed. The House of Commons met at twelve o'clock on Friday, the 26th, and the scene consequent upon the application of Baron Rothschild, about which everybody was desirous of hearing, ensued. The first intelligence received here was through the medium of the London evening papers, which came jogging down with the express train at 5 p.m., and the telegraphic report of a small portion of the morning's business came tolling in at the early hour of 10.30 p.m., accomplishing the distance in the extraordinary period of between nine and ten hours. The close of the Parliamentary business never reached us at all, having probably turned in for the night in some of the insulators south of Rugby. We have been compelled to make this transaction public, inasmuch as no notice is taken of private representations, and as we are expected to pay for telegraphic facilities, and have led our readers to expect that they shall have them, we beg leave to put the saddle on the right horse, by exposing the erratic tricks of this seemingly irresponsible and unaccountable public company, and the improvements they have effected in telegraphic communication."

**DESTRUCTION OF THE MORMON TEMPLE AT NAUVOO.**—The great temple at Nauvoo, one of the architectural curiosities in the United States, was destroyed by a hurricane on the 27th May. This stupendous edifice was erected by the Mormon religious sect in 1845, and was partially burned in October, 1848, leaving only its four walls standing, the timber and wood-work having been consumed by the flames. The work of re-building had made some progress.

**INTIMIDATING WORKMEN.**—A man named Lewis was lately convicted at the Liverpool Police Court of threatening or endeavouring to intimidate workmen in the employ of Mr. Hughes, cabinet maker, Bold-street, there. Disputes had arisen with Mr. Hughes's men and the Cabinet-makers' Society, relative to Mr. Hughes employing his men at piece prices, instead of paying them by the day. It appeared from the statement of Mr. Hughes that deputations from the union had frequently waited upon him to induce him to alter his system, that pickets were stationed about his premises, and that his men were intercepted. The defendant was liberated on his own recognizances of 130*l*, and the security of his solicitor for the same amount, to be brought up on a day named to receive sentence. In another case connected with the former a conspiracy was pretty clearly established, but it was proved in evidence that the nominal complainant (one of Mr. Hughes's workmen) was drunk on the occasion referred to in his evidence.

**THE BRITISH ASSOCIATION FOR ADVANCEMENT OF SCIENCE** have held a fairly successful meeting in Edinburgh. In the mechanical section on Monday a noticeable paper was read by Mr. George Beattie, on a new door-spring, the motive power of which is the pressure of the atmosphere. In this invention, the action of the door in opening is made to draw a piston partially out of a closed cylinder, and the pressure of the atmosphere, in forcing the piston back again to its seat, causes the door to shut. The power obtained in this manner was illustrated by the exhibition of a full-sized apparatus, which required a considerable effort to overcome the resistance of the atmosphere.

**STEAM BOILERS: IRON v. COPPER.**—A New York correspondent of the *Mechanics' Magazine* controverts the idea that copper is better than iron for boilers, and hence he deprecates the immense waste of money involved in the use of copper in the place of iron. The argument is based on the experiments principally of Messrs. Biot and Despretz, proving that copper is a better conductor of heat than iron. "The term 'good conductor,'" says the writer, "has been applied erroneously, because it was intended to convey the idea that it would convey or conduct the heat or caloric of the fire through itself into the water on the other side—which does not apply to copper, but to iron; which is confirmed by the well-known fact that the absorbent and radiative powers are always equal in the same metal, and are far greater in iron than in copper, while the latter metal is, in the same ratio, the best reflector; for reflection is inversely as radiation, as proved by Leslie and others. The power of reflection then appears to control that of radiation, &c., to confine the caloric within the metallic (copper) surfaces, or at least within that depth in which the power of reflection lies. With these facts before us, together with others proving beyond a doubt that all other things being the same, more water is evaporated in the same space of time in iron than in copper boilers, with the same amount of fuel, it is not possible that the present absurd and fallacious arguments can stand another year,—and their downfall must be hailed with pleasure by all who love the truth and progress of science,—and will inevitably lead to the perfecting of boilers made of that still most noble of all the metals, iron."

**ST. MARY'S, ABBERLEY.**—The foundation stone of the church of St. Mary, Abberley, Worcestershire, was laid on the 27th July, with full service and all the ceremonies, including dinner to several hundred parishioners, &c. The church is a gift from Mr. James Moilliet, as is the site also. It is geometric in style, has a tower and broach spire, will cost 5,800*l*, and has sittings for 350. Mr. John J. Cole is the architect. The inside, it is stated, will be peculiar, having arcades for future monuments, stone screens, &c.; and the whole inside will be of rubbed ashlar, with no plastering whatever.

**THE MARBLE ARCH AT BUCKINGHAM PALACE.**—The Commons have voted 11,000*l*. for taking down and putting up again the marble arch, and for new iron railings in front of the palace. Where the arch is to be put, however, the Chancellor of the Exchequer says he knows not.

**ELECTION OF PENSIONERS: BUILDERS' BENEVOLENT INSTITUTION.**—The reading of a not very clear sentence in the report led us, last week, to put down as dead a poor widow who is a candidate for election in November next: we notice the circumstance to prevent injury to the poor woman's prospects from such an inadvertence.

**WORMS CATHEDRAL.**—Are you correct in calling the flat end of Worms Cathedral the west end? I visited that building in the year 1848, and, according to my recollection, the flat end is next to the Rhine. Now, Worms being on the left, that is, on the western bank of that river, and the cathedral standing, in its length, at right angles to it, the end nearest the river must, of course, be the east end. The flat end has a semicircular inner wall, forming an apse, with perforations in it communicating with the windows in the flat external wall: it is here the principal altar stands. If I am wrong in what I have written, no doubt many of your readers can set me right.—J. M.

\* \* Hope calls it the west end.

**THE VERNON COLLECTION.**—The pictures bestowed on the nation by Mr. Vernon have been placed in Marlborough House, together with the other English works formerly in the National Gallery, and are now open to the public. The rooms are ill adapted to the purpose, and the majority of the pictures look worse than they did in the cellars of the Academy. Poor West would be sadly distressed if he were to flit back for a peep at "Cleombrotus;" and as to Hilton's large picture, there is no spot in the room where it can be seen. The rooms might have been much improved by raising the window-heads.

**COLOSSAL STATUE.**—A Frankfort journal states that the colossal statue of Bavaria, by Schwanthaler, which is to be placed on the hill of Seudling, surpasses in its gigantic proportions all the works of the moderns. The great toes are each 18 inches in length. In the head two persons could dance a polka very conveniently, while the nose might lodge the musician.

**TREASURER OF THE ROYAL ACADEMY.**—Mr. P. Hardwick has been appointed treasurer, instead of Sir Robert Smirke, who has resigned in consequence of continued indisposition.

### STARTLING TENDERS FOR WINDSOR DRAINAGE:—

	Pipes.	Main Sewer.	Total.
G Kempster, Hampstead	2. s. d. £. s. d.	£. s. d.	£. s. d.
D Thornbury, London	3052 14	8 5500 10	7097 12 0
Munday, London	3170	0 2280 0	0 8150 0
Jarvis, London	3255 1	6 2506 15	6 5791 17 6
Stoney, Luton	3239 13	4 2524 2	6 5793 15 0
Copper and Baker, Paddington Station	3002 0	0 2086 5	5 3688 5 6
Bedborough, Windsor	.....	.....	5 080 0 0
Humphrey and Thirk, London	.....	.....	3311 0 0
Favill, Lgham	.....	.....	6232 16 0
Lawrence, Windsor	.....	.....	6150 0 0
Brown, London	3400 0	0 2500 0	0 4900 0 0
Herber and Eals, Wellington-st., Blackfriars	.....	.....	1243 9 0
J. Lawson, London	.....	.....	1500 0 0
Holles, Windsor	.....	.....	4155 0 0
Edwards, Slough	.....	.....	4100 0 0
Dethic, London	1912 0	0 1893 0	0 3805 0 0

### TENDERS

For the erection of two houses, Gloucester-terrace, Paddington. Mr. George Morgan, architect. Quantities furnished.

J. Wilson	£1,681
Johns	4,504
Trigg	3,890
Simpson	3,350
Trego	3,815
Johnson and Fisk	3,770
R. Lammner and Son (accepted)	3,695

For additions to the Gloucester Union Workhouse, Messrs. Jacques and Son, architects, Gloucester. Quantities supplied by the architects.

Harrison, Stonehouse	£1,114
Morgan and Elizard, Cheltenham	1,080
Bussell, Gloucester	1,020
Cowley, do.	840
Sims, do.	865
Clarke, do.	870
Jones, do.	865
Nichol, do.	861
Clovelton, Quidley (accepted)	850

For building three new houses in George-street, Adelphi. Mr. Lockyer, architect. The quantities were not supplied.

Clements	£1,680
Ashby and Sons	4,465
Matthews	4,347
Trego	3,664

For Tolthampton Farm, near Kingsclere, and farm-buildings, for Mr. W. S. Portal. Mr. Thos. Kelly, architect.

Thorne, Basingstoke	£1,132
Baldwin, Newbury	1,100







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No. CCCXCIII.

SATURDAY, AUGUST 17, 1850.

**W**E cannot pretend to act gratuitously as the architect and attorney of all who do us the favour to read our journal, although some seem to think we ought to do so. To afford the information asked of us by correspondents on matters simply relating to themselves, would wholly occupy one person, and would, after all, oftener mislead than benefit, for want of full knowledge of the premises. A letter "by return of post answering the following questions," or "giving me a little plan," is constantly being asked for: our reply must be, as it has been,—Consult a qualified architect, and pay him for his services. One gentleman, not unknown in London city, requested us last week to send him "by return a draft form of contract with a builder, with proper general conditions," and "some suggestions for ventilating his kitchen, which is arranged" so and so. He concluded by coolly stating that he was not a subscriber to THE BUILDER, but had heard "its editor was to be depended on," and he enclosed *sixpence for postages*! This same gentleman would not have dreamed of asking his builder to send him a hod of mortar, without paying for it,—certainly not, mortar costs money, and he would not be willing to rob his builder of his money: but the time, and mind, and knowledge of an architect are quite another thing. Apart from connection with a public organ, there is everywhere the same ill-appreciation of architects' services; and architects themselves, as we have often said, are mainly to blame for the existing state of things. See what they consider the value of an architect's time at Colchester. A Committee have just now advertised that "plans and specifications" are required for a Public Hall there; and, with a mad liberality, they offer to the successful competitor (one out of forty, say), after he has arranged and drawn out a plan, made an elevation pleasant to the eye and satisfactory to the mind, (not to be done without knowledge), canvassed the Committee, (not without travelling expenses), stooped to intrigue, and achieved success, the tempting sum of *five pounds*. But then, take notice that you thirty-nine or more unsuccessful competitors, are, in return for the chance you have of this great stake, to be fully satisfied to have your plans and your specifications back without any compensation at all. Well may an Inhabitant of the Place,\* writing us on the subject, say he is ashamed of his townsmen. If this Colchester committee were condemned for a month to open their local oysters with a pen-knife, it would give them a useful idea of the painful nature of labour-in-vain. It would be, moreover, nothing more than they deserve. Returning, however, to what we started with, we would go on to say, that inquiries involving matter of interest to our readers generally, will always receive our consideration; and we proceed forthwith to prove our readiness to give it, by replying to a note received last week from a provincial architect. The writer says:—"I have an impression that a decision has been given that an employer cannot recover a penalty under the fol-

lowing common clause in building contracts, viz. that 'on failure of the completion of the work by [a specified date], the contractor shall forfeit and pay [say 10*l.*] for every week that the works shall remain unfinished.' Can you say if there be any decision to the above effect?" The question is one of importance, and deserves to be understood.

We are not aware of any decision to such an effect, so far as the general principle is concerned, although the form used by our correspondent is not the best.

In the case of *Duckworth v. Alison*, tried in 1836, the plaintiff had contracted to alter and repair a warehouse for defendant in three months, under direction of Mr. John Broadbent, architect, and it was covenanted that, "In the event of the said work not being fully and effectually completed in the aforesaid period to the satisfaction and approval of the said John Broadbent, he, the plaintiff, should forfeit and pay to the said defendant the sum of 5*l.* weekly, and every week he should be engaged in such work beyond the said period of three months, such penalty or forfeiture to be deducted from the amount which might remain owing from the defendant to the plaintiff on the satisfactory completion of the works."\* The amount of contract had been paid; the action was brought for amount of extra works; the defendant pleaded, as a set-off, the amount of penalty incurred under the covenant we have quoted, and a verdict was given in his favour.

Plaintiff's counsel then argued that defendant ought to have deducted the penalty from the amount of the contract: but Judge Parke said the power that the defendant had of deducting the penalty from the amount due to plaintiff was an additional power only; there was an absolute covenant on the part of the plaintiff to pay, and defendant therefore had double remedy, either to deduct it or recover it.

In one class of cases the courts of law have the power of awarding damages commensurate to the injury sustained, though the parties have fixed a sum to be paid by way of penalty, and then the amount of loss would have to be proved. But unless we are misinformed, if it be expressed in the contract that the sum to be paid shall be regarded not as a penalty, but as *liquidated damages*, that is, as the sum ascertained and agreed between the parties as the amount of injury, the Courts cannot prevent the recovery of the stipulated sum.

The clause would, therefore, stand "that for each and every week that the said several works, matters, and things remain incomplete after the expiration of the time aforesaid, the contractor shall forfeit and pay the sum of [so many pounds], the same to be deducted or recoverable as liquidated damages."

It is necessary to mention here the result of an action tried in 1836—*Holme and Another against Cuppy and Another*. In this case the plaintiffs, who had contracted to execute the carpenter's work of a brewhouse for 1,700*l.* within the space of four months and a half from the date of the agreement, had undertaken to forfeit 40*l.* for each week that the completion of the work should be delayed beyond the 31st of August, the amount to be deducted from the said sum of 1,700*l.* as and for liquidated damages. The plaintiffs did not complete the work till five weeks after the time, and defendants insisting on deducting the penalty incurred, the action was brought to obtain payment of the

amount of contract. It was proved that plaintiffs were delayed four weeks by defendants' other workmen, and one week by their own men. Verdict was given for the plaintiffs, with power for the defendants to apply as to the right to deduct one week's penalty. On application, however, to reduce the damages to that extent (the amount of one week's penalty), Judge Parke said, "No; a particular day was named for completion (31st Aug.); but this original contract for time had been broken by the defendants, and no fresh contract had been made."\*

Even when no express penalty is set forth, if a builder promise or undertake to raise a house, &c. within a time limited, and fail to do it, an action on the case will lie against the builder for this breach of his express promise or undertaking; but in that case the damage would have to be proved.

It must not be supposed that we are here setting forth the means of oppressing builders: it is as necessary for them as for architects to know the real weight and worth of the covenants into which they enter. In a contract there should be nothing doubtful or left to chance, and we shall take an opportunity before long to say a few words to architects on their short-comings in this respect, and the serious wrong sometimes thereby done to builders.†

## THE ARCHITECTURAL EXHIBITION, FALL-MALL.

THIS exhibition seems pretty certain to grow: it must be watered and tended by some of the head gardeners, however, till it take root firmly, and can stand alone. We are glad to find that the subscriptions are dropping in: a very small contribution from each member of the profession would suffice to clear the projectors from liability. Our readers should remember that the collection is open free, and not omit to examine it. Hereafter it will be desirable to have it in the season, and not, as now, when every one is used up, and is flying off for fresh air and country quiet.

We would suggest giving especial encouragement to the exhibition of artistic ironwork, architectural carvings and decorations. This might be made to form an important and novel feature, and be an additional attraction to the public, and a means of improving taste. Architects are much interested in promoting improvement in these departments, and want the means of knowing where to find the rising men.

No. 1. "Bakewood, Beckenham," by P. P. St. Aubyn, is a good drawing, although without pretensions as a design, the chimney-shafts of the low building excepted. 4. "A sketch for a (Tudor) Street Front," by Nicholl and Wigley, is cleverly treated. 15 shows the "Industrial Training Institution to be erected at Bishop Stortford," by Joseph Clarke. 19. "The Gloucester Training Institution," from the design of Clarke and Norton. They also exhibit (No. 172), practising schools attached to the same, which were disguised in the Academy catalogue under another name. The subscription baths in course of erection at Wolverhampton, by G. Robinson (26), are novel, and much better than the front of the Exchange, Wolverhampton (60), by the same, which shows a few columns stuck against a red wall, with two stories of windows between them. The new church erecting at Ambleside (29), by G. G. Scott, is of the geometric period, with large tower on the north side of the chancel. The proceedings of the committee in obtaining a design for this church were somewhat curious. Mr. Scott also exhibits his drawing of the Westminster chapter-house, and view of a church intended for Walthamstow. 39. "Design for Interior of a Church," by W. W. Deane, is cleverly

\* See M. & W. vol. iii. p. 287. In "The Laws relating to Building," by Clowes and Tait, there is some information on actions on builder's bills.

† Should any of our legal readers feel disposed to forward us their observations on the penalty clause, we shall be happy to receive them.

\* See Meeson & Welsby's Reports, vol. i. p. 412; or Tyrell & Grainger, vol. i. p. 742.



splocthed in. In the "Design for a Baptist" (40 and 41), by Calvert Vaux, a lantern light is made to rise from the octagonal intersection of groining, cleverly devised.

The approved design for Heptonstall Church, by Mallinson and Healy, is Perpendicular, and somewhat common-place. In the Parsonage of St. John's, Lacey-green, by J. P. Seddon, some effect is cheaply obtained by the mixture of red and yellow bricks. 62 is the "Interior of new Church at Walkden," by W. Young: the style of the structure is Early English, but the roof belongs to a later period. 72, "Design for Rebuilding Church of St. Thomas, at Newport," by G. Truefitt, is an excellent drawing of a very good design. It is decorated in style, and has a lofty slate spire. Of (No. 30) "A Wrought Iron Sign Lamp," now being erected in Manchester, by the same, we shall speak next week when on the spot. 79, "The Timber Bridge over the Witham," is a beautiful drawing, by G. H. Andrews, and the same may be justly said of Nos. 110 and 160, "Views of Mr. Peto's Seat, Somerlayton-hall, Suffolk," by the same artist. No. 96, "Perspective Elevation of a Design for a Public Museum," in which the lunette formed by the vaulting of the portico is filled in with stained glass, after the manner of a fresco, is one of Mr. Leeds's ingenious strivings after novelty, in a difficult path. The figures within the pediment are confined to a centre compartment by uprights, which alter the horizontal tendency of the lines to perpendicular. 100, "A Mansion," by Ashpitel and Whitehead, is set forth by pen and ink artistically. 122, "A Design for a Contemplated Public Building," by R. Kerr, is both novel and effective. 157 shows Mr. Kerr's design for the clock-turret on the Guildhall at Norwich, now being executed. The interior of the library at University College, London, by Prof. T. L. Donaldson, is set forth in 154. It is a handsome apartment, with vaulted ornamented ceiling, which would seem to be of plaster, but is grained oak. Nos. 123 and 113 show the proposed restoration of West Drayton Church, by Charles Innes; 140 shows the proposed restoration of a very interesting old house, Ware Priory, by Sidney Godwin; and 199, the Victoria Tower, Guernsey, by W. B. Collings. Mr. J. K. Colling, Mr. Street, Mr. Georgeghan, Mr. J. D. Wyatt, Mr. Edward Walters (a clever design for a mansion to be built near Manchester), Mr. G. F. Jones, Mr. Habershon, Mr. Collmann (design for a ceiling at Luton Hoo), Mr. Papworth, &c., should also be mentioned. Mr. Fergusson exhibits his design for a National Gallery, and some drawings of Indian temples. Mr. E. B. Lamb has, amongst others, a design for the Dundee arch, elaborate in ornamentation, but not so successful as his Gothic designs. Mr. W. P. Griffith sends a bold drawing of Piscina at St. Alban's; Mr. Allom some well-known drawings; Mr. Cave Thomas a clever design for a carpet; and Mr. Britton his design for a Cenotaph Gallery.

On Tuesday, more than 500 persons visited the Gallery.

#### THE BUILDING ARTS IN BOMBAY.

A COMMITTEE is at work in Bombay collecting specimens of native arts and manufactures, to be forwarded to the Industrial Exhibition in 1851, and they intend (we are glad to hear) to send with them as large an amount of statistical and descriptive matter as they can get together. In connection with these endeavours, the *Bombay Times* has commenced a series of articles on the native arts, from which we glean the following memoranda:—

**Cements.**—The only cement here is chunam, in its various forms: the only building-stones, which differ materially from those of the rest of the world, are littoral-concrete and kunkur. Kunkur is described as a variety of limestone mostly nodular—always fresh water and recent—in most cases in the act of being formed under our eyes. It is sometimes found in thick stratified beds like the travertine near Rome, and seems in this case to have been formed by calcareous springs; more generally it is met with in clay or alluvial soil, in the shape of small pieces, from the size of peas or fiblets to that of the hand. In the blue clay which stretches along all our shores it is

found in vast abundance, generally assuming the most fantastic forms; indeed, it abounds in every rice-field and open soil all over the country. The more recent varieties seem to be formed by the agency of the rains; when the earth abounds with vegetation, the tepid waters are charged with fixed air and dissolve the lime prevailing in the soil everywhere around,—the mineral being again thrown down as the advancing season dispels the excess of gas. It in this state absorbs the clayey matter around, and cements it into kunkur. This is collected by the limeburner, placed with firewood in small-sized conical kilns, and burnt in the usual way. It contains 72 of carbonate of lime, 15 of sand, and 11 of clay and oxide of iron. Mixed with half its weight of river sand, it makes an excellent mortar: burnt in pieces of a cubic inch or so in size, and then powdered without slaking, it forms a first-rate water cement, setting in a few minutes, and becoming as hard as stone. At Poona the finer varieties of kunkur are burnt with charcoal all throughout the city, in neat, pigmy-looking kilns, 2½ feet high and about as much in diameter at the base. These hold about a cubic foot of material, or about 36 lbs. of charcoal and kunkur in equal parts. When burnt, it is slaked, and then made up into bricks, which are sold in the bazaar for the purpose of whitewashing. The finer kinds of chunam on the coast are made from shells, brought chiefly from Rutnagberry.

**Building-stones.**—To pass from cements to building-stones, we first come to Laterite. This rock seems peculiar to India. It covers the western coast almost continuously, and for the most part up to the very foot of the ghats, and from close by Bombay to Ceylon. It is found in detached beds along the Coromandel coast, near Madras and Nellore, Rajahmundry and Samulcottah, extending into Cuttack. It caps the loftiest summits of the eastern and western ghats, and some of the isolated peaks in the table-land in the interior. Its colour is of a red iron or brickdust hue, sometimes deepening into dark red. It is marked with whitish stains, and is occasionally cellular or perforated with tubiform holes. It quickly hardens and darkens in hue by exposure to the air, and is not at all liable to decomposition or injury from the weather. The Arcade Inquisition at Goa is built of it, and also the old fortress of Malacca. A curious variety of trap-tuffa, sometimes white sometimes greenish or purple, found in Bombay and many other parts of India, resembles laterite in the quality of being easily cut when raised, afterwards hardening on exposure to the air. It is used as a building-stone, and suits well for basins, troughs, and aqueducts: it is not very extensively employed. Littoral-concrete is a variety of rock which has not hitherto found a specific place in our geological catalogues; the name has been conferred on it from its being invariably found close by the sea-shore, and from its resemblance to the artificial stone formed by the cementation of sand, gravel, or other coarse material, by lime-water or mortar.

There is but little to boast of at Bombay in architecture in any way: in the Deccan the most massy structures are raised, and carved from trap, with a delicacy and correctness quite astonishing. The vaults and domes of tombs and temples are commonly bolted with iron from top to bottom, and in many cases, instead of scaffolding, the structure is surrounded with a rough wall ten or twenty feet off, the interval between being filled up with earth, a long inclined plane serves for raising the stones. A magnificent structure of this sort, the tomb of one of the Gwalior princes, has stood half-finished near Poona for some thirty years, and here native architecture may be seen in perfection in all stages of advancement. The only building materials at the presidency, besides that already described, consist of green-stone, trap, and a fine-grained variety of nummulate like Bath oolite, called, from the name of the place whence it comes, Porebunder-stone.

The writer denies that the natives refuse to adopt English improvements through obstinacy. He says:—The natives cling to their old customs in most cases, not because they are old and they refuse to open their eyes to improvement, so much as because they are, on the whole, well suited to their circumstances,

and, taking them altogether, more convenient than any proposed to be substituted in their place. Before they could alter them as desired, a whole generation over the whole surface of the land must undergo a second apprenticeship, and go again to school. An Englishman is at once the most inconsiderate and considerate, the most reflecting and unreflecting, of human beings. Set him to construct a machine, to build a ship or a house, and he will examine with the utmost care all the materials and contrivances presented to his choice, and select those best suited for his purposes, taking all in all. He will choose wood or cast iron according to its cheapness, where thrusts or cross-strains are indispensable,—worked iron to resist a pull,—massy stones or bricks for a wall, and light slabs, tiles, or slates for a roof; and the excellence of the results brought about will be found to justify the course and skill resorted to for their accomplishment. But an Englishman abroad forgets these things; everything that is unlike what he meets with at home, no matter how well adapted to the different state of things in which it prevails, is wrong. He must have strong wine and roast beef in the south of Europe—wear a cloth coat, a stiff collar, and black hat, and make his visits in the hottest time of the day in India; and this for no reason whatever but because he desires to do here as he does at home—to defy the laws of nature, and treat the thermometer at 120° exactly as he treated it at 60°. Of course, he reaps the reward of those who strive with what is too strong for them—he is overcome, sickens, and dies—killed, as he says, by the climate, but in reality by his own folly.

Look into the houses of our Hindoo or Parsee aristocracy: the walls are hung with portraits of their English friends by English artists—with prints from Reubens, Rembrandt, Reynolds, Wilkie, Martin, and Allan—with the pictures of Nelson, Napoleon, and Wellington—the busts of Byron and Scott—or, still more dear to them, of Elphinstone, Malcolm, and Sir Charles Forbes; things not to be procured, even if desired, in the days of their grandfathers.

It is not the mere workman only who suffers from want of instruction, and is most anxious to learn could he get any one to teach him; the contractor and master-builder are quite as ignorant as their *employées* of that which it concerns them most to know. Let any one look at the largest and most expensive houses in the presidency—"The Mount," for example,—or observe the buildings at present in progress of erection, and he will find a plan of roof invariably adopted wherein every piece of wood is exposed to a cross strain, or has the load placed in the direction where it is least capable of being resisted. To make a combination of beams of this sort keep its form during the period of its construction, timbers of enormous size and cost are made use of, but no sort of timber will, in the long run, avail against the laws of pressure: the beams swag or bend downwards in the middle—their original weakness being aggravated by the mortices cut out just where strength is most needed—and if not supported by uprights from beneath, the roof sinks, the walls are forced out, and the building falls. Thousands and tens of thousands of rupees are in this way wasted at the presidency annually—as much, probably, as might maintain a college to teach something useful, in addition to the one where the purely useless is at present mainly in favour. Engineers have introduced the ordinary king-post roof in most Government buildings, and it has been copied very extensively by natives, but, as usual, without the slightest discrimination or attention to the principle of strain. One of the first rules in carpentering is to avoid as much as possible all cross strains where mixed material is resorted to, to stay with iron, strut with wood, and to make the strain on wood a thrust as far as possible. To not one of these maxims is the slightest heed paid by the natives; but nothing would delight them more than to be shown, without regard it might be to principle, how they could make a house equally strong as at present, with a large saving of material. These things are not acquired intuitively, and the authorities are above teaching them: they are too busy with astronomy to think of carpentry.



## POSITION OF ARCHITECTS IN IRELAND.

I AM glad to find that my crude and desultory thoughts on this matter have created some interest among the profession. Your correspondent, "J. J. L.," has conceded to the truth of my most material statements, and has courteously taken exception to one or two: he does not approve my censuring the Institute, kindly throws the veil of charity over their failings, and accounts for their non-success by the difficulties they had to encounter. I do not believe, nor can I perceive, that they have had more difficulties to encounter than any other fine art association in the kingdom; the institutions cited by "J. J. L." have had much greater obstacles in their path, yet they have been nobly overcome, and deeply is Ireland indebted to their indefatigable promoters. The truth is, the grand obstacle they had to encounter was that unjust and impolitic monopoly of architectural practice which Government instituted in the country, and against which the Institute never raised its voice; and why? because the leading members of it were and are interested in the maintenance of that monopoly. What would the profession in England say were Government to place the designing of every church in the hands of one architect; of every workhouse in those of another; and of every normal school and educational establishment in those of a third? Why, such a storm of indignation would burst from one end of your land to the other as would scare any Government from the commission of so unjust an act. Yet this is the hard grievance under which we have been labouring, and which has blighted the prospects and cramped the energies of many rising and clever young architects; which has driven scores of them from their native land to find in America and elsewhere that opening for their talents which an unwise Government has denied them at home.

I say an unwise Government, for the system under which these Government works are carried on is foolish and impolitic in the extreme, discreditable to those who are connected with them, and injurious to the community at large. I will take, for example, the Poor Law Commission. There are about 140 unions and workhouses in Ireland; they are all the works of the Commissioners' architect, or rather, he originally designed one, and all the rest are a stereotyped edition of that one; the same style, the same plan, the same arrangement, repeated in every one, no matter what the site, what the peculiarities of locality. To any architect who has sat down to study and prepare plans for an English workhouse, who knows the intense thought, care, and anxious consideration given to every arrangement and detail of the building, it will appear incredible that such an amount of labour and responsibility should be thrown on one individual.

The consequence is, and it is a notorious fact, that the Irish workhouses are in every respect most defective, ill-arranged, ill-sewered, ill-ventilated; thousands of pounds have been expended in remedying defects of arrangement and construction; and the loss of life consequent upon the neglect of due sanitary precautions has been constantly and strenuously commented on by the medical officers of these establishments.

And this is state of things to continue,—are public health and public money to be squandered by the hasty and inconsiderate planning and erection of these edifices? Twelve of hot-house growth have already sprung from the offices of the Custom-house within the last six months; it is calculated that forty-eight more are required in a short space of time. Surely the Government do not mean to perpetrate any longer this system of things. If they wish to have economically constructed buildings,—if they wish to have those houses where the poor are lodged and fed, well arranged, well ventilated, well sewered, and made fit for the reception of rational beings,—if they desire to raise and elevate the character of the profession in this country, let them throw open these public resources of architectural practice and profit to the community at large, and when by such encouragement the numbers and means of the profession increase, and its character becomes elevated, then indeed, Ireland may hope to have a disinterested, high-minded, and art-loving Architectural Institute.

Much of what I have stated holds good respecting the Educational Board: in fact, I saw, a short time since, an entire edition of model agricultural schools, lithographed from one design, and which one design I expect will be repeated as often as the two hundred copies of the union workhouse. Now, if the professional public had been consulted in reference to these model schools, what varieties of design, what new points of arrangements, and what excellent and economical modes of construction, might have been arrived at by their varied investigations! But the board has rejected all these advantages, and, acting on the penny-wise and pound-foolish system, are repeating, *ad nauseam*, the one plan in every site and under all circumstances. I have already adverted to the evils produced by the "Ecclesiastical Commission," whose system of church-building has become distasteful alike to the clergy and people.

It is with pleasure I turn from the doings of these bodies to the contrast exhibited by the Board of Works. They have acted on a truly liberal and art-encouraging principle. The opportunities under their patronage are few; yet they have been given abroad to the profession. In many instances their patronage has been judiciously bestowed, as in the case of the Cork Lunatic Asylum, designed by Mr. Atkins, a southern architect, the representative of his class, the young and ardent members of the profession, to whom this selection has given encouragement and hope.

To advocate their claims has been the object of my humble pen: to call the attention of those in power to the evils their system is inflicting on our profession, and to agitate a removal of those impediments which block the progress of Irish architecture, has been my earnest desire.

Your correspondent, "J. J. L.," in denying my assertion of the low state of architectural practice amongst us, states that, "in the principal cities of Ireland are to be found some buildings which may be considered gems of art." I am sorry that he did not name these cities, and point the buildings out to our notice which are "gems of art." I have been in all the principal cities, and have never been able to discover them: in Belfast and Cork are one or two edifices which barely rise above mediocrity; but as to being "gems of art," the least said about them the better. And as to Dublin, which he has cited in contradicting my assertion, I fully concede to the justice of his eulogium on the public buildings; but let it be remembered, that they are evidences of departed greatness, emanations of the genius of other times, of a Gandon, of a Johnstone, and a Morrison; let it be remembered, that the mind which conceived the Custom-house, the Bank of Ireland, the law courts, and the King's Inns—the proudest monuments of our metropolis—was formed, and educated, and perfected in England; let it be remembered, that the King's-bridge terminus, the finest building erected in Dublin in our own times, as also the stations of the Southern and Western Railway, were designed by Sancton Wood, an English architect.

Let any individual drop into the Art Exhibition in Abbey-street, now open, and he will see the sorry figure which Irish architecture makes there: so melancholy an exposure of the beggary of that branch of our national art should not have been permitted. Falseness of taste, incongruity of design, a total absence of all thought and originality, characterise this year's exhibition; the execution of the drawings generally is of the worst description, some of them such as a school-boy would be ashamed of.

THE CELT.

## A FEW WORDS ON PROGRESS IN ARCHITECTURE.

THERE are in all things certain great natural forces, which become essential constituent sources, and these originate style and habit, from which we cannot deviate much; and where a number of forms have, during centuries, been used in all their various modifications, their characteristics are facts, and they cannot again be sufficiently varied to produce a great distinct and positive expression.

It is so to a great extent in sculpture and architecture, and he who selects and delineates the most beautiful forms by intense mental

and physical labour may as well be called a mere copyist as he who, taking the soul and principle of Gothic architecture, using its best graces and uniting its clear and well-defined proportions, its properly adapted capabilities, and its examples of the just and economical use of materials in the structure he is about to raise may be so termed.

They both have found forms which, eliciting their admiration and ensuring their devotion, have, by the excitement produced in the mind, given the reflection of these objects, according to their powers, just as simply and naturally as the human face divine is reflected by the capabilities of the physical mirror when presented before it. Thus did the mediæval architects and masons give their impressions of the forms preceding them, with those tones of thought and feeling, mellowing and enriching, softening or emboldening, its various parts and details. We also may, and only can do this, and the reason why we do not, while possessing such exquisite monuments before our eyes, with all their geometric and artistic excellence and perfection, produce those results we should and do so ardently desire, is, because the reflecting medium is dimmed by the damping and withering influence of physical, moral, and pecuniary causes, apart and distinct from mental power; for as the human form is the same as in by-gone ages, so is the mind, if only the surrounding circumstances are sufficient to call forth the latent power.

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The day shall surely come, when the simple selections of obvious additions, occasional expedients, accidental jumbings, real errors, quaint usages, and weak-minded devices, with all those childish symbols, which now education and expanded powers of mind have taught us to improve or discard, will be banished away; and we shall behold the presence of pure form, perfection of colour, with realization of decided and unquestionable usages, which the simple yet sublime religion of Jesus Christ requires: that religion which says to its followers, "A new commandment I give unto you, that you love one another."

If we behold the massive pyramid, the gigantic dome, or columnar temple, we find but one feeling pervade the whole; there is a defined, a limited awe, and the effect is too much material. But only leave these contemplations, and pass the portals of the mediæval times, when the whole soul is raised by lightness and expanse to the blue vault of heaven itself, and then say, can the dull pyramid, the dark temples of Egypt,—the Roman Forum, with the chaste structure of the Greek, hold state or title with these erections?

Men live now who can construct the groin, calculate the weight or thrust of roofs, raise on slender columns the vaulted aisle, carry up the spire tapering towards heaven. If not so, whence the electric light,—the iron tube for the railway road, lifted in mid-air, or tunnel sunk below the mortal ken,—the lightning's conversation, or the mighty powers of steam, controlled and held like child in arms, till made to do its bidding, with all the thousand aims and ends of science and industry?

Give but the physical means, and let the motive be directed, then shall religion's home as surely rise in grace and beauty, resplendently adorned, as that the quarry teems with stone, the earth with clay, the forest groans with timber, or the encrusted bowels of the earth contain its mines.

A. Z.

## YORKSHIRE ARCHITECTURAL SOCIETY.—

On 18th ult. the quarterly committee meeting of this society was held at the society's rooms, Minster-yard, York. It was resolved to invite the Lincolnshire Architectural Society to meet them in this county, to form a joint excursion to some objects of architectural interest. It was resolved also to unite with the Northamptonshire and other architectural societies in the publication of reports, papers, &c.

DESTRUCTION OF PROPERTY AT GRAVES-  
END.—A fearful conflagration took place here on the 11th, by which 80,000l. worth of property was destroyed. Half the High-street has been swept away. Unluckily we learn nothing from experience: houses will again be put up, with the best possible arrangements for—burning.



## SHORT ALLOWANCE OF WATER.

On building a house, the first regard of the founder has generally been to the supply of water. The ancient patriarchs ordinarily pitched their tents at a well or a river. Modern builders in a city have no care on this score, for companies, with chartered rights, are empowered to supply every tenement, and are, by implication of the correlative duty, bound to supply them.

On the first apprehensions entertained by the water companies that Government, actuated by paternal feelings, would give the population pure living water to drink, these gentry walked softly, abated their excessive charges, and increased the supplies; but as soon as it was settled that their vested interests should be fully respected or bought out, straightway they reverted to the old practice of scant allowance and extortionate demands.

It may not be generally known, and it certainly has not been complained of in the volume of the press, that water companies have, and exercise, a power that no other individual or communities possess, viz., that of enforcing payment of their dues from parties who are not indebted! So, however, it is; and in the simplest way possible, debts due by defaulters are enforced against the unfortunate occupiers who succeed them in a tenement. *Ex. gr.*—

A takes a house which B deserted, owing three quarters' rates; A applies to have the water laid on, which had been cut off for non-payment of the rate, but is answered, "No; you must first pay the defalcation of your predecessor, and 5s. the penalty for breaking the pipe." I took a house in Kensington Gore, found the water cut off, sent 5s. to the inspector to lay it on, but was answered that "No supply would be given until the defalcation of my predecessor should be paid up!" Incensed at the manifest injustice, not to say tyranny, of this legislation *en particulier*, I resolved not to comply; and having a well on the premises, I sank a pump, and am consequently constrained to the habit of *hard drinking*, as the fall of soft is withheld from me.

Now, that water companies should assume the right to levy dues by compulsion, in a way that no other creditor is entitled to do, seems strange, is inconsistent, and must be illegal; but that power they certainly have and exercise, and that in a most effective way, for, except in *well* cases such as mine, they may starve men into compliance.

To have an idea of the force of this power, one must have been at sea on short allowance of water: few there are who have experienced, even in cases of shipwreck, an utter privation of the element. Impurity of quality and stinted quantity are, however, bad enough, and easily appreciable.

What I would insist on is, the right of every house, of every inhabitant, to a full supply of water. Every individual is as naturally entitled to this element as to the air he breathes.

Should water companies have power to recover dues from people not indebted? or, in fact, any facilities of levying debts in account different from those which the law of the land provides for every other creditor? I maintain that they ought not; and, moreover, that every habitation should be amply supplied with water, whether poor or rich,—whether they pay or do not pay; and that rates chargeable in that behalf should be recoverable like any other debts, distress, process, or summons. Where there is nothing to seize, the return should be *nulla bond*. Courts of law may now, however, be advised of a more forcible dodge in the current theory of *nulla aqua*.

The awful epidemic of last year softened some hard hearts, and so far had a beneficial effect. Pipes were conveyed into hovels that never had other water than what had been carried in pails by the inmates. There are, however, yet many poor dwellings without any supply; and I would instance, as a dangerous nuisance, the privies of a densely-peopled rookery or lane, called Park-lane, Kensington-gore, which fester and exhale pestilence, as though no patriotic were within reach of infection.

If water be denied to the denizens of poor districts, a paternal government should provide fountains, wells, or pumps, or they should reopen the natural rivulets (Fleet-ditch amongst the number) with which a bounteous Provi-

dence irrigated the plains of Middlesex, but at the same time these should be guarded from impurities.

Doctor Reid might as well be invested with a power to withdraw by pneumatic skill air (the first element of the vital principle) from the chill abode of penny, and to dole it out in fitful blasts in the purlieus of filth, while he inflated the Lords and Commons to suffusion,—it would be as justifiable as stinting the poor in their equally indispensable supply of water.

QUONDAM.

## LAYING THE FIRST STONE OF THE BRISTOL HIGH CROSS.

A SPIRIT has certainly been awakened in Bristol, and is about its work. There is movement and life among the citizens, and they are evidently determined to go in and win. All Bristol went out, and got wet by the way, on the 8th inst., to see the first stone of the High Cross laid in College-green: the mayor (Mr. Haberfield) did it in his usual pleasant style, and the Freemasons in large numbers assisted.

In the course of his address, detailing the history and adventures of the original cross, the mayor said:—"The Bristol High-Cross was first erected near the church of the Holy Trinity, or Christ Church with St. Ewen's consolidated. It was at first erected in the centre, where the four streets, viz. Broad-street, Wine-street, High-street, and Corn-street, meet. I find that the year 1373 may be deemed the era from which Bristol may date some of its greatest improvements; and the citizens, in commemoration of Edward the Third's separating it from the county of Gloucester and constituting it a county within itself, and fixing its pomerium or boundaries by an ample charter for that purpose, rebuilt the renowned cross on the very spot where the old one stood, embellished it in a most superb manner, and placed effigies of King Edward the Third, together with three preceding royal benefactors, very well carved for the time, in the vacant niches of the then perhaps defaced saints. Their gratitude and the loyalty of the citizens were the laudable motives to this undertaking; and I trust that, on the present occasion, the same feelings actuate those who, in the reign of our present beloved Queen Victoria, whom God bless and preserve, have contributed to the present undertaking. King John was placed northward, fronting Broad-street. He gave the city the first and very extensive charter of privileges, especially all the void ground on the banks of the rivers, thereby "to amend the town by building." The statue of King Henry the Third fronted Wine-street, eastward. He confirmed the charters of King Henry the Second. King John and himself granted a charter which joined Redcliff to Bristol, making it one corporate town. King Edward the Third was fixed towards Corn-street, westward. He made Bristol a county of itself. King Edward the Fourth was added, in 1461, to the other three figures, and was placed fronting High-street. There it stood, greatly admired for its associations and for its ornaments, which were very profuse, for at least 260 years; but in the year 1633 the city, having continued to receive fresh and repeated instances of royal favour, and the cross itself by this time perhaps wanting some necessary repairs, it was taken down in part, enlarged, and made higher, in the same style of architecture, and four other statues of kings were now added. Henry the Sixth was placed in a new niche eastward. He granted and confirmed all the charters of his predecessors. Queen Elizabeth was placed eastward: she had also confirmed the charters. King James the First was placed southward. King Charles the First northward: he granted a new charter, and sold the castle and its dependencies to the city, which, to the great annoyance of the inhabitants, was before out of the mayor's jurisdiction. By this additional superstructure, and the new figures, the cross became an object still more admired by strangers, and more esteemed by the citizens.

The cross will stand on five steps of Cornish granite, and will be about 44 feet high. The stone selected by the committee is the Nails-worth stone. The base will be 15 feet 6 inches square. There will be eight figures,—the

four before-named as in 1373 and 1461, when the figures of Henry the First stood eastward, Queen Elizabeth westward, Charles the First northward, and James the First southward.

## RAILWAY JOTTINGS.

THE American mail has brought intelligence of the suspension of the contemplated railway across the isthmus of Panama. Can it be possible that the proprietors have already tapped a volcano?—A project for a railway, to enable the sea portion of the transit from England to New York to end at Cape Canso, Nova Scotia, is attracting much attention.

"One of the most surprising circumstances attending the creation of railways," says the *Dublin University Magazine*, "is the amount of capital which, within a limited period, has been expended in their construction and equipment." According to the calculations supplied in a work before us, there were in operation, at the commencement of 1849, in different parts of the globe, a total length of 18,656 miles of railway, on which in capital 368,567,000*l.* had been actually expended. Besides this, it is estimated that there were, at the same epoch, in progress of construction, a further extent of 7,829 miles, the cost of which, when completed, would be 146,750,000*l.* Thus, when these latter lines shall have been brought into operation, the population of Europe and the United States (for it is there only that railways have made any progress) will have completed, within the period of less than a quarter of a century, 26,485 miles of railway; that is to say, a greater length than would entirely surround the globe, at a cost of above five hundred millions! To accomplish this stupendous work, human industry must have appropriated, out of its annual savings, twenty millions sterling for twenty-five successive years! Of this prodigious investment, 27 miles in every 100, and 54*l.* in every 100*l.* are appropriated to British railways."

Mr. Robert Stephenson was lately entertained at a public dinner in the new station, Neville-street, Newcastle, by a number of his friends and admirers.—The Great Northern line has been opened from London to Peterborough. The present London terminus is 400 or 500 yards north of King's-cross. The site of the old Small-pox Hospital, however, at New-road, is where the passenger station is to be erected. The line, for a great portion of the distance, passes through a level country. The first 14 miles are particularly heavy: the principal works are the tunnels near the London end, the Welwyn tunnel, the Welwyn viaduct, and the bridge over the Ouse. The viaduct consists of forty-two arches, each 30 feet wide and 97 feet in height: cost stated to have been between 70,000*l.* and 80,000*l.* The bridge over the Ouse is of cast-iron, with three arches of 75 feet span each. Some of the largest works are north of Huntingdon, with heavy embankments and cuttings. The fen works have involved difficulty in obtaining a foundation. The longest tunnel of seven or eight between London and Peterborough is that at North Mims, three-quarters of a mile in length, and the steepest gradient is 1 in 200. The carriages on the Great Northern are built of teak; and, instead of being painted, the grain of the wood is polished and highly varnished. A carriage, which would otherwise take two months to be fit for use, is thus made ready in a week. The second and third class are said to be vastly better than anything of the same stamp elsewhere.—The London and North-Western Company are erecting a milk market on their station in Lime-street, Liverpool, from designs by Mr. Woods, one of the engineers. It will be covered by an iron roof, by Mr. Turner, of Dublin. Such milk markets erected near the metropolitan termini of the various lines would be of vital importance to the Londoners, who would have an unequivocal interest in upholding them, if based, as they doubtless would be, on a more substantial foundation than the old "London chalk."—Several architects, says a Berwick paper, are busy preparing plans for a triumphal arch to be erected in the centre of the Berwick bridge, on her Majesty passing along the new line of railway in her progress to Scotland.—The works of the London-derry and Enniskillen line, between the



towns of Strathbane and Newton Stewart, a length of about ten miles, are about to be constructed.—Mr. Dargan, the contractor, has proposed to complete the Limerick and Waterford, and to supply funds for that purpose, which the directors have been unable to obtain by way of loan from the Treasury. Engineers are engaged surveying a new line near Caher and Bansha.—The Liverpool, Crosby, and Southport is progressing rapidly towards completion, and will shortly be opened for traffic. The works are about 3½ miles long. The line is continued on an embankment at the Derby Arms, Liverpool, by a skew arch of 30 feet span. The remaining portion of the line to Waterloo is on the surface, over an embankment, and considerable cutting. There is a timber bridge, on piles, at Seaforth, and another between Southport and Waterloo. At Waterloo the only bridge over the line will be constructed. This will be a stone bridge 140 feet long, and two carriage roads (Crosby and Southport) will form a junction over the bridge. There will be stations at Bootle, Merton-road, Seaforth, Marsh-lane, and Waterloo; also at other places not yet fixed upon.—A reduction of fares on the Bucks line has led to an increase of 50 per cent. in the receipts.—In the Court of West-Riding Magistrates, on Saturday week, an Irish hawker was fined 11, with expenses, for violating one of the bye-laws of the Lancashire and Yorkshire Company, in *interfering with the comfort of a passenger travelling over their line*. The offence was proved by a servant of the company, and the passenger referred to. The defendant was in liquor. One of the magistrates properly remarked, that it was high time annoyance and interference with the comfort of passengers in railway carriages should be stopped. If any similar case was again brought before him, he should inflict the highest penalty, and send the party to the House of Correction for three months, if he did not pay.

—A correspondent of the *Times* says, "Coming up from Guildford this morning by the South-Western, in a second-class carriage, I was somewhat surprised to find in possession of one of the seats a mad woman (with two attendants, male and female), who, I was informed, was being conducted to a madhouse. This woman was raving furiously almost the whole time, and the words she uttered were calculated to disgust any respectable person. There were several ladies in the same carriage. I leave you to imagine their feelings." Now we should like to know what the magistrates would say to such an "interference with the comfort of railway passengers" as this, and whether they would hold those guilty of the sober and deliberate purpose of thus annoying second-class passengers into the purchase of first-class tickets, worthy of "the House of Correction for three months." As regards even the safety of the public, far less their mere comfort, the insane are to be virtually ranked with the order *feræ naturæ*; and it is just about as reprehensible and criminal to coop up the sane with the insane in such a way against the will of the former as it would be to thrust a tiger or a hyena and his keepers, or a mad dog, into a carriage, of whatever class, amongst the passengers. But let it not even be supposed that the last, at least, of these hypothetical cases, would be an extreme one very unlikely to occur; unfortunately it has just occurred; a dog, which turned out to be mad, having been allowed, on one of our lines of railway, to enter a passenger carriage, where it ultimately bit a man, who has since died in all the dreadful agonies of hydrophobia.

#### PEEL MONUMENTS.

In reply to a question in the Commons, the Premier states that the subject of competition in the erection of the Westminster Abbey monument has not yet come under consideration.—A sum of between 2,000*l.* and 3,000*l.* has been subscribed in Blackburn for a monument in that town to the memory of Sir Robert.—At Brighton it has been resolved to form a public library and museum in honour of him.—The Salford subscription now amounts to about 800*l.*, and the committee are thinking of advertising for plans and designs, as they can now rely on more than 1,000*l.*—The Manchester monument is to be a bronze colossal statue mounted on a

pedestal, and placed in the Infirmary grounds, perhaps in the centre of the pond—a fit place for river gods, though even that may be questionable; but why such a statue should be placed in the centre of a pond it is difficult to conceive. By next meeting the committee expected that they would have realized 5,000*l.* The feeling seemed to be decidedly against advertising for sculptors, as "they did not want young artists or cheap artists, but men of the highest character and talent that Britain could produce; and if the money now obtained were not sufficient, more must be procured." The Lords Provost of Edinburgh and Glasgow had been written to amongst others, to gather information as to the form and cost of such monuments. The latter in reply states that the bronze statue of Sir John Moore, in George's-square, by Flaxman, erected in 1811, cost 4,000*l.*; that of James Watt, by Chantrey, about 3,000*l.*; the equestrian statue of the Duke of Wellington, in bronze, by Marochetti, at the Royal Exchange, with pedestal and bronze reliefs, about 10,000*l.* From inquiries made lately, in view of procuring an equestrian statue of the Queen, adds the writer, "I have reason to believe such works may now be obtained at a considerably lower price. The stone column in George's-square, surmounted by a stone statue of Sir Walter Scott, I think cost about 2,000*l.*, and in the town-hall a marble statue of William Pitt, by Flaxman, cost 1,300*l.* The Merchant's-hall statue in marble, by Gibson, of the late Kirkman Finlay, Esq., cost about 1,100*l.*" To these particulars we may here relevantly add a few gleaned from a parliamentary return of 1842 as to some of those in Westminster Abbey and St. Paul's. Amongst the former that of Captain Montague, by Flaxman, 1793, cost 3,675*l.*; Captains Harvey and Hutt, by Bacon, 1793, 3,150*l.*; William Pitt, by Westmacott, 1807, 6,300*l.*; Spencer Percival, by Westmacott, 1814, 5,250*l.* In St. Paul's, that of Earl Howe, by Flaxman, 1803, cost 6,300*l.*; Lord Nelson, by Flaxman, 1807, 6,300*l.*; Earl St. Vincent, by Bayley, 1823, 2,000*l.*; Lord Collingwood, by Westmacott, 1811, 4,200*l.*; Sir John Moore, by Bacon, 1810, 4,200*l.*; Marquis Cornwallis, by Rossi, 6,300*l.*; Sir Thomas Picton, by Gage, 1816, 3,150*l.*; Sir William Ponsonby, by Theed, 1816, 3,150*l.*—A committee has been formed by various noblemen and gentlemen at Edinburgh, to institute some lasting testimonial there also to Sir Robert Peel.

#### VENEER MILLS.\*

In the course of Mr. Brunel's experiments with the steam-mills, to improve the process for the sawing of logs of timber, he thought of applying it to the production of veneers, which, before his discovery, were sawn in the usual manner in the pits, but were rudely, as well as expensively, produced; the failures of the sawyers in the production of a perfect veneer being frequent. For two years Mr. Brunel, at considerable cost, carried on his experiments, but only with approximations to success. The saws he first used were straight, and were formed of "a solid plate" of one piece of steel. They were very fine; and, from the heat produced by the friction of the timber, they soon became useless; for in working they "lengthened" and "buckled," and so lost their accuracy of performance. "It buckled sometimes," said my informant, who was, at the time I speak of, with Mr. Brunel, "like the frill of a shirt." On one occasion, when watching the working of his saws, Mr. Brunel took a file, and, as if struck by a sudden thought, "nick'd" the saws in the parts where they "buckled." The machinery was then set a-going, and the saws worked truly, without hitching or irregularity. It then occurred to Mr. Brunel (who was himself surprised, my intelligent informant assured me, at the effect of his simple remedy for the buckling), that saws formed of distinct pieces of steel would be better than those formed of solid plates, and this—when he had given more attention to the subject—led him to apply segment saws, of a circular form, to effect his purpose. These saws were then formed, as they are at present, of different segments of steel, by which any "buckling" or deviation from the nicest accuracy is thoroughly ob-

viated. The first application of the segment and circular saw convinced Mr. Brunel that his discovery was perfected—a conviction which has been justified by a long-tried result, for up to the present day no improvement, and indeed no alteration, has been introduced into his process, as regards the use of these saws. The first steam-mill established for the sawing of veneers was at Battersea, thirty-four or thirty-five years ago, and was the property of Mr. Brunel and his partners. This mill is still in full operation.

The wood to be sawn into veneers is first carried into the "adzing-room," where men chip the surface with axes, or level it with planes, so as to remove any grit or dirt which might impede the action of the saw. The logs so adzed are then fixed by an application of Scotch glue to a wooden frame with transverse battens, so as to be held fixedly when subjected to the action of the saw. Scotch glue is used in preference to all others. It may not be so strong as marine glue, but marine glue is not affected by water, and for the business purposes of this mill the glue must be capable of being removed by washing, as the part to which it has been applied must be cleansed.

The timber to be sawn is then taken to the room, a large well-lighted apartment in the mill I visited, 120 feet long, 90 feet wide, and of proportionate height. In this room are eight circular saws, from 7 to 17 feet in diameter. There are eleven such saws in use altogether in the mill: the teeth of the 17-foot saw are five to the inch, and the rest in proportion.

The timber, affixed to its frame, is placed on an iron beam, and adjusted to the exact approximation to the saw. The saw is then set rapidly revolving, and the sawyer, assisted by a boy, follows the timber as the machinery carries it along, subject to the fine and dividing edge of the saw: he keeps the teeth of the saw clear from the dust, as far as he can, and closely watches, and in some sort directs, the precise adjustment of the timber to the saw, until the veneer is completed. On my visit a large rosewood tree was being sawn, and the veneers looked like huge dull "watered" ribbons. The strong glowing colours are brought out by [scraping, &c. and] vanish.

The machinery can cut fifteen veneers in the inch, though eleven and twelve to the inch is the usual demand. The sawyers can saw but little more than six on the average to the inch.

VALUE OF PROPERTY.—In Fleet-street a freehold house and shop let at 400*l.* per annum to a law publisher was lately sold at Garraway's for 10,020*l.*—Part of the London estate of the Marquis of Exeter, which includes the Lyceum Theatre and Exeter-change, with extensive buildings in Wellington-street North, Exeter-street, Catherine and Brydges-streets, and other localities about the Strand, has been sold in 24 lots for about 58,000*l.* The rental of the premises sold is about 3,030*l.*, but estimated at about 4,000*l.* on expiry of leases. The whole estate, so valued at 8,000*l.* per annum, was in the market when the 24 lots were being bid for by capitalists in active competition.—The entire village of Irnham and part of the village of Corby were sold lately at Garraway's with the rest of the Irnham estate, its farms, lands, and livings, for 115,000*l.* The estate contains 3,000 acres, and the net rental is 4,000*l.* per annum. The living yields a gross income of 950*l.* per annum.

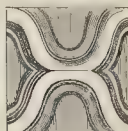
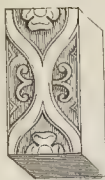
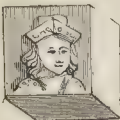
—Hayhill estate, near Newnham, Gloucestershire, was sold for 29,000*l.* It consists of 1,000 acres—estimated annual value, 1,300*l.* A separate lot, the Bear-inn, &c., Newnham, fetched 3,000*l.*—Glastonbury Abbey and adjacent land, lately put up by Mr. Chinnock, were bought in at 35,000 guineas.

NAVIGATING THE AIR.—A new old-notion on this subject has been revived for the benefit of the French Academy, by an Italian,—no less than a trained band of Brazilian condors to convey him through the air, docile as horses, and swifter than steam. According to the *Atlas*, he has offered to carry the despatches backwards and forwards, between Paris and Frankfort, upon the occasion of the approaching Peace Congress, to prove his power. Vauxhall or Cremorne should be off to Paris and catch him flying. If he speak true, his birds would draw.

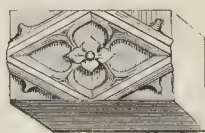
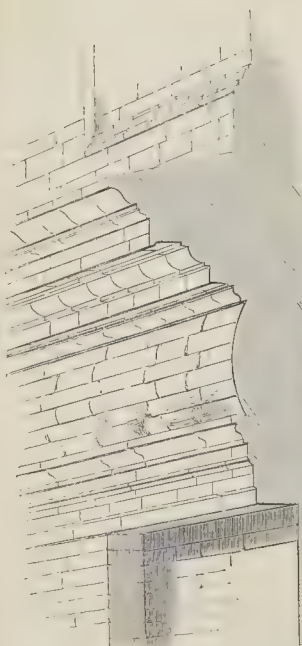
\* From the *Morning Chronicle*.



## EXAMPLES OF MOULDED BRICKS.



GATEHOUSE AT WOLTERTON HOUSE.





## ANCIENT ARCHITECTURE AT RECULVER, KENT.

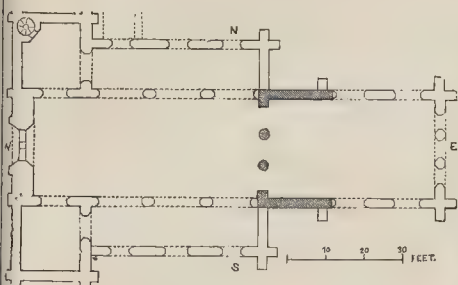


Fig. 1. Ground Plan of Reculver Church.

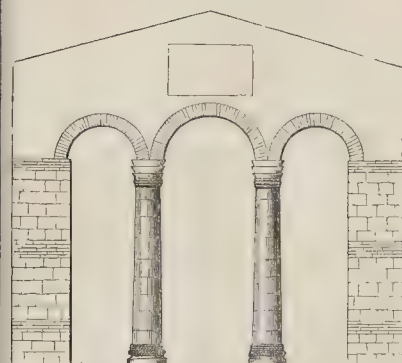


Fig. 2. Roman Architecture, now destroyed. Height of Column, 17 feet; height of Arch, 22 feet.



Fig. 3. Column supporting Chance Arches. A. Plan of Column, the dotted lines showing the Plan of the Cap.

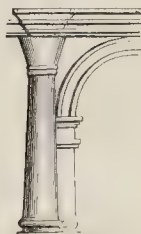


Fig. 4. Ince Blundell.

## ON MOULDED BRICKS.

A STRONG opinion on a popular subject well expressed and unflinchingly adhered to, is generally a sufficient stock in trade to enable most men to go through their public life not only with respectability, but very often with reputation. The man becomes the symbol of that particular opinion, and at last is perfectly identified with it. As with men, so with history. Each age has had its favourite cry—its particular enlargement of some one idea. The peculiarity of the present century consists in the multitude of its cries.

Among these there was one which much interested the members of the architectural profession. Somehow or other a cry went about that the art, no longer able to support herself, was declining, and therefore something must be done for her. Accordingly every body began, after a fashion, to encourage the art. Local committees of respectable tradesmen advertised competitions for impossible buildings, at impossible prices, with microscopic premiums for the successful candidates. Noblemen presented gold medals to rising artists at different societies. The Camden Society thundered, and, lastly, Government experimented on a School of Design.

The result of this is, that decent churches are now built, one or two fine public buildings erected, and the system of ornament is a step or two in advance of what it was in George the Third's time.

But here the improvement has hitherto stopped. The common domestic architecture has remained nearly *in statu quo*. Stone, of course was dear, and not to be thought of. Inigo Jones and Wren had done some very excellent things in moulded brick, but the legislative wisdom had laid a heavy tax upon all bricks except those of the standard size; so the only thing to be done was to use a nice new invention which had just come up,

and accordingly Nash and Wyatt showed us what could be done with stucco and Roman cement, by means of which we could turn the fronts of our houses into Roman palaces "in petto."

But another change has come over the spirit of the dream, and we are at last to have a material which really will last, and which is equally susceptible of ornament, and requires no painting or repairs. The duty is at last taken off brick.

This is not the place, or much might be quoted concerning its history: perhaps no manufacture has a more respectable and complete genealogy, from the time when

"Of brick and of that stuff they cast to build  
A city and town whose top might reach the skies,  
And get themselves a name,"

down through the brick pyramid, the bricks mentioned by Vitruvius, and the Flemish churches and mansions of the middle ages, to the present day.

But now we have the power of using moulded bricks, what are we to do with it? into what forms are they to be moulded, and what will be the most advantageous mode of their application? Our illustrations will show what has been, and it remains for us to draw a useful lesson from them as to what we shall do in future.

The upper engraving (p. 390) is from Wolterton House in the parish of East Burslem, county of Norfolk. The illustrations show the gatehouse and its details, the same patterns being used in the other portions of the house, although the gateway bears the arms and supporters of Henry VIII., viz. the lion and griffin, whilst the porch of the house has those of his father, viz. a griffin and greyhound.

These latter arms, with the arch of which they form the ornaments, and the window over it, as well as the jambs of the arch shown in our engraving, are the only parts formed of

stone in the whole building: all the rest is brick, even the two figures on either side of the entrance, which Blomfield, in his "History of Norfolk," calls giants or wild men.\* It is but fair to mention that these and some coats of arms of which no duplicates were wanted, are executed in cut brick not moulded. The building was probably begun by Sir Henry Fermor, and finished by his son Sir William Fermor, which last probably built the gatehouse.

Norfolk, from her want of stone, is particularly rich in old brick houses, many of which are well deserving of an attentive study. Not far from Swaffham, at the village of Cressingham, is a house, the whole of whose front is covered with tracery executed in a stone-coloured terra cotta.

Our second illustration is the entablature from the front wall of the British Museum, built by Poget in 1680, for Ralph, first Earl of Montague: the joints are most beautifully managed, especially the vertical ones, being less than one-eighth of an inch.

And this brings us to the principal drawback which we shall experience under the new state of things: and that is, that we shall see ornaments fearfully misplaced; those designed for a large building crushing a small one, and vice versa. But these mistakes will not last long. A man who sees his mistake will generally try to avoid it the next time, and in the course of a few years experience will have dictated what patterns are the best for use, and where they can be employed in the best taste, and with the greatest advantage.

We need scarcely remind our readers how useful the collection of terra cottas of Mr. Townley will now be found, and how admirably many of these subjects are adapted for friezes. Hitherto they have hardly been used, or, indeed, scarcely noticed, and yet there is no doubt but that some of them were modelled by the same artists whose works we so much admire in marble.

## ANCIENT ARCHITECTURE AT RECULVER, KENT.

UNDER the title of "The Antiquities of Richborough, Reculver, and Lyme,"† Mr. C. Roach Smith, assisted by Mr. F. W. Fairholt, has just now completed an interesting volume on the vestiges of Roman dominion discovered at the places named, and which contains much that is new and valuable. The history of Britain during the 400 years it was under the rule of the Romans is very incomplete. Every year, however, makes more evident how completely Britain was Romanized: their roads may be traced into every corner of the kingdom, and villas of elaborate plans, pavements of extraordinary beauty, amphitheatres, pottery, bronzes, coins, are being constantly brought to light. The labours of Mr. Roach Smith in this interesting field are well known, and his present contribution, enriched as it is by numerous sketches by Mr. Fairholt, will be found not the least of his labours. Kent was the scene of the earliest important events in the annals of our country: here the Roman conqueror landed; the first Anglo-Saxon kingdom was established; the banner of Christianity raised by Augustine.

Of the 268 pages which form the volume, 172 are devoted to Richborough, including an account of the various remains collected from thence by Mr. Rolfe, and now in his museum at Sandwich; 58 to Reculver, and 38 to Lyme. The latter is the scene of very recent successful investigations, but we shall look to the account of Reculver as containing matter more especially interesting to our readers. Every visitor to the Isle of Thanet has seen from a distance the two towers of Reculver, and many have visited the spot, though somewhat difficult of access,—grieved over the scandalous and unjustifiable destruction of the church,—and gazed wonderingly at the "broken framework of human bodies projecting from the black unctuous cliff," undermined by the waters.

During the demolition of the edifice a very remarkable portion was brought to light, which, up to the present time, has apparently

\* When Blomfield wrote, the building was more perfect than it is at present; our own impression, when we saw them was, that they were figures in armour, not wild men.  
† London: John Russell Smith, Old Compton-street 1850.



remained unrecorded, except by the drawings and notes of the late Mr. Joseph Gandy, A.R.A., in the possession of Mr. C. J. Richardson, engraved in Mr. Smith's book, and now annexed to our notice. These records will prove most acceptable to our readers, while, at the same time, they add to the regret that is felt by all reflecting and right-minded persons, that "a building, possessing such claims on the national protection, and on the sympathy of those who were peculiarly constituted its defenders and guardians, should have been consigned to destruction, in a manner alike disgraceful to the projectors of the selfish and heartless job, and to the legislature of the day, which passively tolerated such Vandalism."

The ground-plan, given above, shows the church in its perfect state. It consisted of a nave, a chancel, and north and south aisles, with two square towers, which are yet standing. The nave was separated from the side-aisles by four square pillars on each side, supporting pointed arches, the pillars being 3 feet 10 inches by 2 feet 9 inches. The chancel was separated from the nave by one large and two smaller semicircular arches. It is to these arches, and their columns, including portions of the side-walls, represented with a dark shade in the plan, that I would direct attention.

The annexed cut represents an elevation, showing the architectural peculiarities of the columns, the arches, and the walls. The arches were turned with Roman tiles, and the walls banded with three courses of the same, the upper and lower, in each wall, consisting of four rows, the centre of five; the walls are described as of rough stone. Unfortunately, the mortar, an important evidence in determining pure Roman masonry, is not described; but there is every other requisite for referring this remarkable portion of the church to the Roman epoch. A question may at once be anticipated, as to the probability of this more ancient part of the church being constructed by the Saxons, *more Romano*. But we possess no remains of Saxon architecture so perfectly copied after the Roman style as these would be, could they be considered as the work of Saxon masons, under the guidance of the ecclesiastics, at a period when specimens of Roman buildings existed as types and models. There is a neatness and finish in the masonry which is wanting in the instances of Saxon work with which we are familiar: the courses of tiles are remarkably regular, and, from a drawing by Bartlett, published by Virtue, they are represented as being carried along the side wall, marked dark in the plan, with the same regularity. The columns also, harmonizing with the arches and walls, present features which must, I submit, decide the appropriation of the work to the Roman period.

An enlarged view of one of the columns is given in the annexed cut, in which those peculiarities marking them as Roman are more clearly shown. The capital,\* the cable-pattern mouldings, and the increased diameter of the bottom of the shaft of the columns, appear to admit of no objection to the early epoch to which I assign them. For comparison of the peculiar character of the capitals of the columns, a portion of an architectural ornament on a Roman sarcophagus in the collection at Ince Blundell, is here given.

All must feel regret that this church, hal- lowed as it is by many most interesting associations should have been despoiled and demolished. Mr. Smith, in the course of his valuable volume, very properly condemns the destruction of our ancient national monuments, and urges the importance of religiously pre- serving them.

#### IMPROVEMENT OF DWELLINGS.

We learn from the *Labourer's Friend* that Mr. Roberts's Essay on the "Dwellings of the Labouring Classes" has been "Traduit et publié par ordre du Président de la République," with some prefatory remarks, of which we give a portion:—

This work is addressed to all good men, to all who love their country. It is offered to them as a sign of the lively interest which is

awakened in another country for the amelioration of the condition of the labouring classes; it is offered as an example which may inspire them to imitation. To provide for labourers in the country, as well as in towns, dwellings well lighted, well ventilated, dry and clean—such is the first problem to be solved. We do not hesitate to say, that long since this problem would have been solved if every person was fully convinced that these conditions once realised, a multitude of the causes of sickness, of misery, of disorder, and of corruption would disappear. Who is the physician ignorant of the fact that the want of light—vitiated air—dampness and surrounding dirt, are as many causes which, singly, and with much greater certainty when united, contribute more than everything else to shorten life and to render it miserable, by inflicting on those who are exposed to them a multitude of personal and hereditary infirmities? Who is the moralist who does not admit that the human soul itself becomes degraded under the prolonged influence of such conditions? Who is the statesman who has not sighed to see all the hospitals and the prisons overcrowded with the wretched people which these causes have been the means of producing? Yet it is almost always easy to obtain for rural dwellings the necessary amount of light. With regard to dwellings in towns, this is a feature most deserving the attention of the commissioners charged by the authorities with this important oversight. The regular renewal of the air in dwellings is a new problem for science,—it has never approached it. But is it not sufficient to propose such a problem, in order that it should give to it speedily a happy and practical solution? In reference to dampness,—the healthiness of dwellings is everywhere a desideratum, even in the houses of the middle classes. Let us, then, direct the attention of our young architects towards this important subject. It is a great honour to be judged worthy of going to Rome; it is a great merit, in returning, to bring back the plans of some palace destined to become the ornament of our cities; but he who finds or who invents the art of driving away the humidity which renders unhealthy so large a number of the dwellings of our town and country labourers, will have gained a right to the gratitude of the country, and will have prepared for himself a source of imperishable satisfaction. In the meantime let good men, especially let young men, teach the workmen by whom they are surrounded to set some value on those habits of cleanliness which are the first steps taken in the path of progress towards well-being.

#### THE NEW HOUSES OF PARLIAMENT IN REGARD TO SOUND.

THE experimental wooden roof here has been altered, and now has a better appearance than at first. The sloping sides are made to terminate level with the transom of the windows, so as to leave one light in height complete beneath. The galleries have been made wider, temporarily, so as to contain two rows of seats instead of one.

The select committee appointed to inquire into the accommodation in the new House of Commons have reported, "That the plan submitted by Mr. Barry, and attached to their report, providing accommodation for 318 members on the floor of the House, or for 338 members (if seats be provided in the south gallery), and for 150 members in the side galleries, allowing 20 inches for each member, will, in the opinion of the committee, be an improvement on the present House, and afford adequate accommodation for the transaction of public business, and that the probable expense of making the alterations proposed will be £5,000."

I must beg leave to observe, that I think it is hardly fair to censure Mr. Barry for the difficulty experienced in hearing distinctly in the new Houses of Parliament: as long as the present arrangement of seats is adopted, by placing them on the sides instead of the centre of the room, the same inconvenience will always be experienced according to the nature of sound and acoustics. There is nothing different in the form of the Houses to other large public rooms, where the seats are arranged

in the middle of the room, and the speaker or orator in the centre. In a long narrow room, the seats being placed on the sides, and the speaker at one end, the parties opposite would hear pretty distinctly, whilst those at the end would scarcely hear at all, unless great silence prevailed; and the same observation would apply to persons placed at the extreme ends of the room in a gallery, which has been found to be the case in the House of Lords as well as the Commons, as the reporters will verify.

As long as the present arrangement is adopted, the orator should be placed nearly in the centre of the side seats to be heard; but the most perfect arrangement is the one previously mentioned. Persons do not generally complain in our churches and public halls of the difficulty of hearing, and why is this but because the speaker is placed in the centre, or a little on one side and the public in front? If an arrangement of a similar nature could be adopted in the new Houses, there would be no necessity to destroy the architecture of the rooms by putting in a false ceiling. Perhaps, on consideration, many scientific men, who are more capable of entering into the merits of the case than myself, might arrive at the same conclusion. I only aim at putting the matter in a plain practical way, that no illiberal or unjust censure should be passed on the architect, who has quite enough to contend against.

I trust that some of your enlightened correspondents may be induced to throw a little light on this important subject.

W. W.

#### EXHIBITION OF MANUFACTURES AT ROYAL DUBLIN SOCIETY'S.

THIS exhibition is at present open, and, according to our correspondent, is superior in every respect to preceding ones, and is attracting more than ordinary interest. In all the various departments of manufactures there is improvement manifest.

The specimens of linens, silks, muslins, lace, woollen drapery, hosiery, &c. are good. There is a great variety of fancy and industrial work. In cabinet making, Messrs. Richard Turley, Birmingham, and Messrs. George Austin, Patrick Beakey, William Lyburn, and Arthur Jones, Dublin, excel. The carving from the patent machine works of Messrs. Taylor, London, attracts considerable attention, also the specimens by Isaac Whitehead, Nicholas Lombard, and Cornelius De Groot, Dublin, and by Messrs. Prosser and Hadley, London. The lustres, &c. by William Mooney, Henry Gregg and Son, and James Hawkins, Dublin, are fine specimens. The chimney-pieces by Robert Hibson, and the mosaic table tops by James Hoban, both of Dublin, are noticeable. Mr. John Ridgway, of Stafford, exhibits a model of a patent brick and tile kiln for saving fuel and improving the goods, which reflects credit on the ingenuity of the patentee. The testimonial to Sir Moses Montefiore, designed by Sir George Hayter, modelled by Mr. E. Bailey, R.A., and executed by Hunt and Roskell, London, is one of the leading features of the exhibition: it is 3½ feet high, and weighs 1,319 ounces of silver. The top is surmounted by a figure of David conquering the lion and rescuing the lamb: the four sides respectively represent the landing of Sir Moses Montefiore at Alexandria, the audience granted by the Sultan, the liberation of the prisoners, and Sir Moses offering thanks at Bevis Marks. The Irish Engineering Company exhibit a wrought-iron safety railway wheel, composed of two pieces only (the wheel and the tyre), obviating the necessity for rivets. There is a great variety of machinery, engines, &c. the principal of which are, a locomotive engine by Grendon and Co., Drogheda; a friction railway buffer, by Wilfred Haughton; Columbian printing press and calendar for paper making machine, by Courtney and Stephens, Dublin; a small steam engine, by A. Oldham, Rathgan-road, a boy fourteen years of age and self taught. Mr. Robert Stephenson, C.E., London, exhibits models of the Conway tubular and Great Britannia bridges. There are also models by A. Mosley C. Papworth of designs for monuments, and proposed improvements to Carlisle Bridge—J. Farrell, architect—by D. Cuthbert.

\* Mr. Charles Baily suggests that the capital may possibly have been intended for bronze foliated ornaments of the Corinthian order.



## NOTES IN THE PROVINCES.

THE "Board of Health" is in operation at Derby. At a meeting of the clergy last week they unanimously resolved to petition the Board to stop "intramural interment"—at once admitting that their grave-yards were crowded—and praying for the formation of a large cemetery at the outskirts of the town. We are glad to learn that the notice of the grave-yards at Derby in a former number\* was not without effect.—A large inn, with hall attached, for the purpose of holding the meetings of the County Court, is in course of erection at Belper. The court is 70 feet by 30, and 22 high, to which is attached judge's room, water-closet, and lavatory; barrister's ditto, with a gallery at either end,—one for an orchestra, the other for the public, in case of its being used as an assembly-room. Mr. Wigington, of Derby, was the architect employed. Mr. Freeman, the builder.—The new church, at Belper, Mr. Stevens, of Derby, architect, was consecrated on Tuesday before last.—The new Fish-market building at Lincoln is being rapidly proceeded with by the contractor: its division into a number of separate shops is objected to.—A new church is about to be built at the Hockereid end of Bishop's Stortford, at an estimated cost of 2,500*l.*, of which 900*l.* have been raised, and a site presented.—A plan and specification of a butter and poultry market for Leicester have been prepared by Mr. Flint, architect, and adopted by the town council. The area will be 5,250 feet, divided into three parallel avenues, with triple roof, and vaults beneath the ground-floor. The walls are to be of brickwork, stucco, and cement, with stone copings, &c., and pavement. The glass of the three eastern slopes of the roof is to be 4th cast-plate. The estimated expense of the building is 1,730*l.*, exclusive of fittings and deducting old materials.—At Wantage, on Monday in week before last, the foundation-stone of a school for sons of farmers and tradesmen of Wantage, was laid in memory of King Alfred, who was born there; and on same day a school for poor children was dedicated, and a small chapel on the Vicar's Glebe consecrated. The charity school has cost about 1,700*l.*, raised by subscription, and it is in the Early English style. The school about to be erected is to be in the Pointed style, and to form three sides of a quadrangle. The material will be Cirencester stone, with Bath stone quoins and dressings. The roof of the school will be open to the timber framing. Mr. J. B. Clacy, of Reading, is the architect, and Messrs. Hunt and Kent, of Wantage, are the contractors.—A new guard-house, &c., is about to be erected near King William's Gateway, at Portsmouth, on a plan already prepared at the Royal Engineers' Office there.—The Worcester New Gas Company have just declared a dividend, at the rate of 8 per cent., for the last half-year.—Sir William and Lady Cockburn have presented to the parish church of New Radnor, Herefordshire, the new casting of the church-bells, as an useful monument to their eldest son, who had recently died at Rome, on the eve of his majority. While asking to be allowed to make the offering, Sir William adds:—"I make no stipulation as to my wish that these bells, when completed, should, by a muffled peal, record the 3rd of each May, when, at Rome, God 'stripped me of my glory, and took the crown from my head.'"—Shares, to the extent of 4,050*l.*, have been taken for the proposed public hall at Leeds.

THE CHIEF IRON MANUFACTURING ESTABLISHMENT IN THE UNITED STATES.—The Novelty Iron Works, belonging to Messrs. Stillman and Allen, whose names are intimately associated, as engine-builders, with the success attending our most valuable ocean steamers, are among the largest in the United States. No less than 1,016 men are employed in its various departments, whose weekly wages amount to about nine thousand dollars. The amount of iron melted here, in one month, is not far from 300 tons, all of American manufacture. The yearly business transacted is equal to nearly one million dollars.—*New York Journal of Commerce.*

\* See page 221 ante.

THE METROPOLITAN DRAINAGE.  
SURREY AND KENT DISTRICTS.

At a meeting of the Metropolitan Sewers' Commission, held on Friday last, Lord Ebrington in the chair, Mr. Forster's report on the system to be adopted for the drainage of the southern districts was read. This report in its entire state is too long for admission into our columns; but we give it in abstract, exclusive of its preliminary exposition of principles and objects, and its more detailed particulars.

## "SURREY DRAINAGE."

"My Lord and Gentlemen,—I now proceed to furnish a report and estimate for a complete system of drainage for the Surrey and Kent districts, including extensive alterations in the inclination of existing sewers.

Notwithstanding the labour and ingenuity displayed in many of the plans for the drainage of the metropolis sent in last year—some of which dealt ably with the general drainage on the north side of the Thames—I have been, in laying out the plan of drainage for the south side, able to derive little or no practical assistance from any of them, which is to be accounted for, doubtless, by the necessarily defective data on which they were based, owing to the imperfect nature of the information which it was then in the power of the commissioners to supply to their various authors;\* but I feel it my duty to acknowledge in the outset the very valuable assistance I have received from plans and suggestions prepared, after consulting the block plans and subterranean surveys, by a member of your hon. commission, who kindly placed them in my hands during the preparation of the plan I have now to submit. \* \* \* \* \*

I recommend the top of Woolwich Reach as the point for delivering the sewage into the river, because I believe that the matter so delivered at and after high water, and in the centre and at the bottom of the stream, will not rise to the surface, so as to inconvenience the inhabitants of Woolwich. If however, it should be deemed expedient, either for agricultural purposes or for any other reason, to convey the sewage below Woolwich, to some point near Erith, before its delivery into the Thames, it may be effected by means of iron pipes across the marshes and through Woolwich, to be supplied by an engine and stand pipe erected at or near the Woolwich road, near Greenwich-gate.

Commencing with the outlet at a point eight miles below London-bridge, it is proposed to form a double reservoir, capable of holding at least twenty-four hours' drainage, covered over, and elevated to such a height as to discharge the whole of its contents at high water, delivering them by means of pipes, near the middle and at the bottom of the river. The sewage will be lifted into the reservoir (by means of an engine) from the main sewer, the invert of which is proposed to be at about mean low water mark, and 10 feet below the surface of the marshes.

Hence the course of the main sewer will be across Greenwich Marshes, along Woolwich Lower-road, Trafalgar-road, and Roan-street, to the Ravensbourne (where there is proposed to be a lift not exceeding 25 feet) passes under the river Ravensbourne past the corner of the Trinity almshouses, crossing Union-street and Bridge-row or Collier-street.

This lift and shaft I propose to place completely under cover, and to connect with the chimney of the smoke-consuming furnace of the engine all the passages from which any gases could escape from the sewer, and I feel perfectly confident that with these precautions the possibility of any annoyance being caused to the neighbourhood may be avoided.

It is not proposed that the engines should have to raise all the storm water or land floods; these will be provided for in extraordinary cases by the four existing outlets, viz., the Effra, the Earl, the Duffield, and the St. John sewers, and by means of reservoirs and a diversion of the upper part of the Effra to keep the low-lying and thickly inhabited part of the district free from floods. \* \* \*

I beg now to lay before you my estimate of the cost of draining the district according to the system above described; but before doing this I would observe that in drawing up this report and these estimates I have thought it desirable to put down the outside amount of lift, of depth of drains, &c., in order that if there be any error it may be on the right side. In this estimate I have neither included compensation for passing through or under private property, which, however, from the lines adopted in accordance with the principle you laid down, will be comparatively trifling; nor the cost of the detailed drainage, to estimate which will

\* Notwithstanding this statement, we do hope the commissioners will immediately take into consideration the propriety of rewarding some of the competitors. There are two or three who have spent much money upon the matter, and can ill afford it. If their plans have been of service they should be compensated,—or might be employed.

be a work of much time and lengthened inquiry. In any case this will involve a considerable outlay; but as it is dependent on the settlement and partial completion of the main drainage, it would have been premature to go into it here; neither have I taken into account the cost of extending the system of drainage into the suburban districts—a provision which it becomes daily more imperative to make.

Estimates of cost of system above described :

	Miles.	Fur.	Cost.
Main trunk drain from outlet in Greenwich marshes to the lift at the Ravensbourne .....	2	0	£25,847
Reservoirs and outlet pipes .....			20,280
Pumping engines and apparatus .....			27,400
From the lift at the Ravensbourne to a point near St. James's Church, Bermondsey, north main line ...	2	5	40,030
Extension of north main line from St. James's Church to the Great St. John Sewer .....	0	6	8,007
South main line from Collier-street, Deptford, to St. Mark's Church, Kennington .....	4	0½	49,603
Flood line of Effra .....	0	5½	7,200
Intermediate mainline from Surrey canal-bridge, with northern arm ..	2	2	12,000
Southern arm along New Kent-road ..	1	0	5,000
Alteration of existing sewers to connect with the intermediate main line, &c. ....	6	0	32,000
Effra flood line diversion by Peckham .....			7,000
	13	3	£241,299

The report being read, Mr. Stephenson entered into some further explanations, during which he remarked that in reply to complaints out of doors, the public must bear in mind that the commission has not been more than ten months in existence, and that some of its members came into it quite fresh—unacquainted with a great number of the localities of London, and absolutely unacquainted with the complicated system of sewage existing, to the extent of nearly 600 miles. In addition to this, the underground surveys were in a very incomplete state, and no one could venture to say what general plan ought to be pursued at that time, as it was dangerous to commence with any one locality, for fear of interfering with the ultimate chance of success. In considering the necessity of beginning on the Surrey side, he characterised the whole system of sewers on that side as but an articulation of cesspools. With more especial reference to the scheme proposed, he said the expense of pumping may at first appear to be very great; but when it was reported to me, by the officers of the commission that the cost of flushing and the cost of removing the solid matter now concreted at the bottom of the sewers would be very great, and that the cost of pumping up the whole of the sewage matter would cost less money, I thought that the system of pumping, as applied to the south side of the Thames, appeared to be entirely without objection.

Sir John Burgoyne said, that as to the general principles laid down in Mr. Forster's report, the commissioners were unanimous in adopting them; and that, with regard to details, there was no difference of opinion amongst them.

The Chairman rejoiced that the Court had at last succeeded in coming to a satisfactory solution of this very difficult question. His lordship proposed to formally adopt this report at a future special court: agreed to without remark.

Mr. Hawes said,—In reference to the prompt execution of these works, we are now in treaty with several persons for the loan of sufficient money to carry them out. We shall require about 250,000*l.*, to be repaid in thirty years by thirty instalments, principal and interest. The expense so divided would amount to about 2*d.* in the pound. That the chairman added, would depend on the terms made; but the charge would be about 2*d.* or 3*d.* in the pound.

A Gentleman in court asked whether it was compulsory on landlords to drain into these sewers when formed?

Mr. Hawes, in reply, observed, that every house within 100 feet of a sewer must drain into it, and care would be taken to have a sewer within 100 feet of every house.

Previous to entering into the question of drainage, the chairman alluded to an error "in the public reports" as to the expenses of management, and an explanation was given in a report read by the secretary. But from these erroneous reports, those of the BUILDER ought to have been excluded, as we fell into no such error. The item, "payments of books, surveys, management, &c. 85,346*l.* 3*s.* 6*d.*" involved the error in question, the word "books" being a mistake by some of the daily papers for the more important word, "works." The expense of management is quite large enough, without overstating it.

We regret to have here to say that a considerable portion of the Ordnance map of the metropolis has been seriously injured, some of the work, indeed, quite obliterated, by a malignant unknown, who appears to have managed to pour nitrate of silver on it, although it had been carefully deposited in a drawer at the office in Greek-street.



## Miscellaneous.

**THE INTERNATIONAL EXHIBITION.**—It is perhaps questionable whether London ever held so distinguished a position, or whether Britain was ever so truly Great, in the sight of all nations, as at this moment, in anticipation of that grand cosmopolitan centralization of the whole world's enterprize, which will virtually elect the capital of England into the commercial metropolis of the nations. For then, without the slightest vestige of a hyperbole, will there be here assembled the representative fruits of the genius and industry of "every nation under heaven," to do homage to the pre-eminence of the British Empire, as at least the central mart for all, whatever be the result to it in particular, as that "Great Babylon" to which "all the merchants of the earth" will doubtless be devoted till the ominous end of their commercial empire. The several announcements of the intention of many of the more civilized nations on the continent of Europe and America to take part in the great jubilee or fair have long been made and known, as indeed have subsequently those of the less civilized Asiatic nations,—such as the Hindus, Chinese, and Persians. Still more recent announcements are those from Turkey, the Sultan having decided that specimens of Turkish manufactures shall be sent, in to the exhibition; and from Peru, the President of which has issued a decree appointing a commission to select and take charge of the Peruvian contributions. The Canadians are about to hold a grand district industrial fair at Montreal in connection with the international one of '51. From this district exhibition selections will be made for transmission to London. The Government of Wurtemberg have just appointed a commission to represent the interests of that country in the great commercial Parliament. Animated debates are being held in the manufacturing circles of Paris on this momentous question. Many dwell on the new advantages which England will draw from foreign products, in order to repair her deficiencies on points where she is now beaten by foreigners. Others represent that the superb silk of Lyons, the rich, fanciful bronzes and objects of art in Paris, fear no competition, and that a great impulse to these branches of commerce will result from the opportunity of dazzling the Briton with such articles of luxury. The body of manufacturers has taken the title of "Union of Parisian Industry for the Universal Exhibition;" and the board have met to classify the industrial sections, and name delegates to prepare, in concert with the board, a joint exposition of the special branches. In short, the whole world is astir, and London and its next year's sights are the anticipative subject of that whole world's wonder and expectation, from the present time forth till the grand consummation.

**ELY CATHEDRAL.**—The Dean and Chapter have put forward a renewed appeal to the public for funds towards the restoration of their cathedral. The extraordinary funds which have been placed at their disposal are not sufficient to meet the contracts and engagements into which they have already entered, whilst much more will be sooner or later required for other works which are absolutely necessary for the completion of the design: such as a stone screen, of an enriched character, behind the stalls; a new pavement; a new arrangement for the altar and reredos; the restoration of the half ruined monuments, as far as they can be considered essential parts of the architecture; inferior stalls and moveable seats for a much larger congregation than the new stall-work now in preparation can accommodate; and the replacement of groups of sculpture in the niches of the canopies of the stalls, which were destroyed at the Commonwealth. The works for the new choir are in great forwardness. Mr. Rattee, of Cambridge, has already completed the principal parts of the screen, the canopied seats of the Bishop and Dean, the entire new series of sub-stalls, and is also engaged upon a case for the new organ. The brass work for the open panels and crest of the screen, and the gates of the choir, has been entrusted to Mr. Hardman. Some progress has been made in cleaning the ancient stalls of Alan de Walsingham, which are to be transferred to the new choir.

**STOCKPORT: FALL OF COTTON MILL.**—At the inquest on the bodies of those (thirteen in number) killed in the fall of a mill reported in our last week's impression, Mr. Fairbairn and Mr. Hodgkinson were examined as to the probable cause. The latter attributed the fall to insufficient strength in the cast-iron beam over the water-wheel and tunnel. This beam consists of horizontal flanges, tied together by a thin vertical plate, pierced with large apertures to save metal, but strengthened by rods, assisting to tie the flanges together. Witness was of opinion that these apertures had weakened the beam, and caused it to break in the centre, where one of the pillars rested on it which were necessary to support the floors above. There was a tall pillar under each end of this beam, of cruciform construction. These, at best, were not so strong as cylindrical pillars of equal weight of metal, and, in this instance, as the pillars tapered and were thinner at each end, they would vibrate with the working of machinery above—always a great evil with cast metal. Mr. Fairbairn also attributed the fall to the breaking of this beam, and the breaking of the beam partly to the apertures, but not wholly to these. The beam otherwise was calculated to carry a weight of 274 tons: actual weight upon it, 80. He disapproved of the upright or strengthening rods, which would have an injurious effect on the beam, after being cast, in the cooling process: an unequal contraction would be the consequence. Witness attributed the false construction of the beam to an error of judgment, and to no niggardly spirit of saving metal or improper motive on the part of the contractors. The jury found that the floors "were supported by a cast-iron beam, of an imperfect construction, and of an improper calculation, considering the weight which it had to bear."

**THE METROPOLITAN INTERMENTS ACT.**—This Act, under which Dr. Southwood Smith has been appointed an additional paid member of the Board of Health, will be speedily enforced in "the metropolitan burial district," which comprises the city of London, Southwark, and numerous parishes set forth in one of the schedules annexed. There are 77 sections in the Act, which Act is to be executed by the Board of Health. The board may provide new burial-grounds, and her Majesty, on a report of the board, in council may order the discontinuance of interments in churchyards and other places.

**WARE, HERTS.**—Eight model cottages are in progress here, near the union workhouse on the hill; the funds being provided by a local joint-stock company. Three tenders were obtained, stated to be, in round numbers, Bird, 1,100*l.*; Carter, 1,000*l.*; and, Piper, 900*l.* The cottages seem to be unwisely small.—To one of some semi-detached villas erected near the last, there is an amusing porch of Ionic columns; the capitals are so much too large that the columns look as if the lower half were buried in the ground.—The Board of Health here is at a stand-still, through not being able to obtain bye-laws from the central board. The same complaint has reached us from other parts of the country.

**RECORDS OF OUR CHURCHES.**—When the present Bishop of Ripon came into position he solicited from every incumbent in his diocese a drawing of his church, in order that the whole might be put together and preserved. The request was cheerfully responded to, and the result is very valuable. The example might be usefully followed in other districts.

**SANITARY REFORM BY BUILDERS.**—Your admonition to builders in a recent leader is excellent. Those few lines have been long required. It is but proper that men who are themselves convinced of the evils arising from the absence of sanitary measures, and therefore of the necessity of sanitary reform—should aid and support that reform by every means in their power. The "sanitary" reform is a mighty one—a reform that requires united powers to perfect, and yet a reform presenting the peculiarity of being able to be completed in part, by the exertions of individual members of society. To this we must look for its more speedy advancement. Even many architects rest content with merely talking about it. I suppose they are of Portia's class. "I could easier teach twenty what were good to be done, than be one of the twenty, to follow mine own teach-

ing." This will not do. Let them now address themselves in earnest to the work, and see who can do most real good. In the meantime, Mr. Builder, do you "fight the good fight, and fight it out,"—again, "alibi desperandum."—W. W.

**THE TEMPLE.**—Mr. Edward C. Hake will announce an essay on the form of "The Ark, the Tabernacle, and the Temple of Jerusalem," showing their identity with the concomitant forms of classic architecture, and the universality of its use in the Temple Architecture of the Mosaic Dispensation, as of Gothic for the same purpose, during the Christian Dispensation.

**ORNAMENTAL GLAZING.**—"W. H. I." is rather hard on the glaziers. The defects to which he alludes we cannot at all times obviate; for much of the ornamental window-glass is manufactured in sheets, and supplied in that form to the glass-cutters, who cut them up with little regard to the positions the squares are intended to occupy when glazed. The fault lies at least as much with our employers, who allow such defects to pass, more especially as ornamented window-glass can be obtained, to order, at very short notice, executed so as to range properly.—A GLAZIER.

**SEWERAGE OPERATIONS, PARLIAMENT GARDENS.**—Mr. Mackinnon stated in the House the other night that eight officers of the House had been seriously indisposed by complaints such as usually arise from exhalations from graveyards and sewers, since the opening of the drains in the immediate vicinity of the House.

**MONUMENT TO WORDSWORTH.**—A committee, of which the Bishop of London is chairman, has taken in hand to promote a subscription for the purpose of placing a full-length effigy of Wordsworth in Westminster Abbey, and, if possible, of also erecting some monument to his memory at Grasmere.

**CHURCH BUILDING.**—From the annual report of the Commissioners for Building new Churches, it appears that since the last report, twenty-one churches have been completed, thirty-two are now building, seventeen have been decided on, three plans are under consideration, and thirty-eight grants have been made for as many others to be erected; and besides, that five others have been built by private persons, and that nine more of same class are in progress. The total cost of the thirty-two churches now building will be above 97,000*l.* or rather more than 3,000*l.* for each, which, as the average of the whole 125, would shew that a sum of 375,000*l.* is now being expended on new churches.

**MONUMENT TO THE DUKE OF CAMBRIDGE.**—Effective steps have been taken to raise a public monument to the Duke of Cambridge, and will, we hope, result successfully.

**BRADFORD WORKHOUSE TENDERS.**—The local *Observer* gives a list of tenders for the several works to be done in erecting the Bradford new workhouse, but it is too long for detailed notice. The masons' work, in nine tenders, ranged from 3,000*l.* to 3,950*l.*; the joiners', in nine tenders, from 1,296*l.* to 1,679*l.*; the plumbers' and glaziers', in seven tenders, from 356*l.* to 475*l.*; the slaters', in four tenders, from 352*l.* to 385*l.*; the ironfounders', in seven tenders, from 180*l.* to 290*l.*; the plasterers', in nine tenders, from 168*l.* to 247*l.*; and the painters', in twelve tenders, from 74*l.* to 159*l.* Those adopted were:—

MASONS' WORK.		
Priestley and Gledhill.....	£3,000	0 0
Additional work.....	10	0 0
JOINERS' WORK.		
J. and W. Beeland.....	1,296	0 0
Additional work.....	16	0 0
PLUMBERS' AND GLAZIERS' WORK.		
Guthrie.....	379	0 0
SLATERS' WORK.		
Hill and Sons.....	352	0 0
Additional work.....	3	18 0
IRONFOUNDERS' WORK.		
Heaps.....	180	0 0
PLASTERERS' WORK.		
Tattersall.....	168	0 0
Additional work.....	2	6 3
PAINTERS' WORK.		
Hird.....	74	19 0
Total.....	£3,482 3 3	

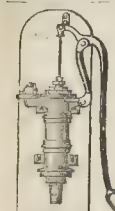






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# The Builder.

No. CCCXCIV.

SATURDAY, AUGUST 24, 1850.

**T**HE British Archæological Association have been holding their annual congress in Manchester and Lancaster. Some excellent papers have been read, and several instructive, as well as pleasant excursions made. We shall get what we can from them for the advantage of our readers. The principal works now in progress in Manchester are warehouses, of which, indeed, it will soon mainly consist; and we shall next week give an elevation and plan of one of these now going up at the corner of Parker-street and Portland-street, under the able superintendence of Mr. J. E. Gregan (the architect of Sir Benjamin Heywood's bank, engraved in our journal some time since), and to whom, by the way, the Association are much indebted for friendly exertions.

The modern warehouses of Manchester, imposing by their extent and height, have also architectural character, and render the streets peculiar in aspect. Several are now going up: we may mention, in addition to the last-named, one at the corner of Dickenson-street and Cooper-street, by Messrs. Travis and Magnall, displaying skill and fancy; and another large pile in Peter-street, by Mr. Donnison, scarcely so good. The additions to the Infirmary, under the direction of Mr. Lane, are going on. An Industrial Establishment for the poor of the parish is about to be erected, at a cost of from two to three thousand pounds, under the direction of Mr. Dickson. There is also to be a new Fever Hospital. The mayor and others show much anxiety that the money which has been subscribed for the erection of a monument to Sir Robert Peel (4,700*l.*) should be satisfactorily expended, but they have not yet decided on the course to be pursued to obtain a design. The site proposed for it is in the piece of water opposite the Infirmary: we may have something more to say upon it. The interior of the Exchange, which has been judiciously decorated with colour, presents several points for admiration, but is not without blemishes, amongst the most prominent of which is the position of the beams of the ceiling of the side divisions, which are unfortunately placed without reference to the windows in the side walls. Near the Exchange is a pile of shops and offices erected lately under the direction of Mr. Walters, who has already done something towards the adornment of Manchester. The cornice is not without elegance, but the broken pediment to admit the window of first floor to appear, is scarcely defensible.

Amongst the works about to be commenced is a direction-post at the corner of All Saints' Churchyard, from the design of Mr. Truefitt. It is also to answer the purpose of a lamp, and is so ingenious and novel that we have given a representation of it.\* This is now being executed in wrought iron. The direction slabs are of thick white earthenware glazed, and having red letters, and the base is carved out of a block of granite. The pedestal is 4 feet 6 inches in height, and the ironwork

\* See p. 403.

13 feet 6 inches—thus making the total height from pavement 18 feet.

The Roman Catholic Church of St. John the Evangelist, at Salford, is a building of great merit, from the drawings of Mr. Hadfield. The west front is a reproduction of a well-known example. It is a cross church of great size, with tower and spire at the intersection. The chancel is prepared for a groined vault, and has a large sculptured figure over each of the main columns. The interior wants decoration to relieve its bareness.

A temporary museum has been opened by the Association at the Mechanic's Institution, and contains many objects of interest. We trust it will not be dispersed without letting the public have the advantage of it for a day or two.

At the opening meeting in the Town Hall, on the 19th inst., James Heywood, Esq., M.P., as president, delivered an opening address, in the course of which he said—relative to the fact that, until of late years, the science of archæology had not been attended to in England in the manner it had been on the continent—that he considered it a very great advantage which the Germans, and particularly the Prussians, had had in having a minister at the court of Rome. M. Niebuhr specially mentioned, in the dedication of his History of Rome, the advantage which he gained from his long residence there, and the archæological researches there carried on. Niebuhr certainly was at the head of his profession; and his history was, in point of fact, a re-writing of the history of that interesting country. His secretary and pupil was the Chevalier Bunsen, now the Prussian minister at St. James's. The chevalier formerly gave great attention to Roman antiquities; and latterly, in a period of leisure, he had given his time to the subject of the antiquities of Egypt. After much study, he had brought out a work which traced more clearly than any other in existence the immense antiquity of Egypt. He carried back his researches to a period 3,000 or 4,000 years before Christ, and he thought it proved that the Egyptians had had a regular line of kings for at least 3,000 years of that period. This was such an entire change from our pre-conceived notions, and we must give a so much longer period to the duration of the human race on the earth than we had been in the habit of doing, that he (the president) thought we should have to have our chronology rewritten. No discoveries in archæology had, in fact, been more surprising than those of Bunsen and Wilkinson, with regard to the immense antiquity of Egypt. Bunsen's work had been published several years, and he (the president) had not seen any other work in opposition to it. We owed a great deal to our English writers for bringing forward in England, in a popular shape, what had been done in Germany: Arnold had made Niebuhr popular with us in a way he never could have been but for his (Arnold's) translation, so that we repaid the debt we owed to Germany, by bringing forward the researches of her writers in a more popular and tangible shape. They owed a great deal to the arts of wood engraving and lithography in making archæology popular, by supplying such beautiful illustrations with which archæologists might illustrate their papers. At the close, Mr. Heywood expressed his desire that the Association and the Archæological Institute should be united, as together they would do more good than singly.

Mr. A. Ashpitel then gave an account of the

cathedral, which we give in full elsewhere. Mr. Godwin drew attention to the dangerous state of the cathedral tower, and expressed a hope that the authorities would give early attention to the subject, and direct their architect to take steps for effecting the necessary repairs.

At the evening meeting Mr. Pettigrew, F.R.S. read a very able paper on the study of archæology, and the particular objects of the Association. The pursuits of the true antiquary, he said, demanded a knowledge and exercise of various attainments. To render his labours effective, he must possess no little acquaintance with heraldry, with genealogy, with various languages, in which inscriptions were to be found, either on monuments or in manuscripts, with history in general, and particular manners and customs, and a variety of other attainments, scarcely to be expected to be found combined in one individual. Hence the benefit of such associations as the present, where persons of different knowledge and attainments combined together, to elucidate the events and memorials of past ages. The present time was peculiarly favourable for antiquarian research; for, from the spread of education, there had been created and fostered a desire to protect and preserve that which was likely to throw light upon any subject of investigation, rather than to wilfully destroy them. The great number of societies and clubs existing in different parts of the empire satisfactorily proved the desire there was for antiquarian research. It was the province of the antiquary to collect, assort, and connect together the various particulars he might find scattered either in the pages of history or in his search for antiquities, so as to elucidate each other, and bring them into one general system.

Mr. Planché, F.S.A., followed with a paper on the Stanley Crest, wherein he contrived, as he has often done before, to invest heraldic matter with great general interest.

A comprehensive paper was read by Mr. J. C. Bruce, "On the Structure of the Norman Castle," to which we hope to revert. On Tuesday the Association made an excursion to Whalley Abbey, afterwards to Ribchester, and thence to Lancaster, to hold an evening meeting, whereat papers were read on the Badges of York and Lancaster, by Mr. Planché; on the History of Witchcraft, by Mr. Thomas Wright; and on the Barbican in connection with our Castles. More, however, anon. We give, as a further memorial of the visit, a view of Hornby Castle, Lancashire, the seat of Pudsey Dawson, Esq., and scene of one of the excursions, which has recently been restored by Messrs. Paley and Sharpe.\* Of this building we shall be able to speak next week.

## ON THE ARCHITECTURE AND HISTORY OF MANCHESTER CATHEDRAL.†

IN consequence of the destruction of the documents referring to the cathedral at the time of the civil wars, any investigation must be undertaken by wading through a great mass of tradition, and *disiecta membra* collected from one source or another. One of the advantages of archæological study was that the more we investigated, the more beauties and excellencies we found. The dust of an old charter frequently turned into the gold of valuable knowledge; and it was the speaker's opinion that there was yet before us, in every one of the edifices of our mediæval architects, an immense amount of really valuable and interesting information. It was too often the case that the past was forgotten in

\* See p. 402.

† By Mr. Arthur Ashpitel, at Archæological Congress.



the excitement of the present; and he might therefore be excused if he recalled to their minds the fact that Manchester was by no means a new or upstart town; on the contrary, that it was one of the oldest towns in the British empire. It was a town in the time of the British: it was a Roman castra, which gave it its name of "chester," and was a title of proud distinction, and from that time to the present it had gone on steadily increasing in importance until it had become the wonder we now saw it. He would not dwell upon the period before the Norman conquest, because very much of the matter referring thereto must be merely conjectural; he would rather, at once, take up the first record we find on ecclesiastical matters in Manchester. This was done in Domesday Book, which mentioned two churches, St. Mary's and St. Michael's, which were endowed with a curate of land, free from the payment of taxes to the king or any one else, except the Danegeld.

Dr. Whittaker had entered at very great length, and with an extraordinary degree of acuteness and discrimination, into the question of the situation of these churches; and his opinion (which had been uncontroverted) was that St. Mary's was situate in the Castle Acre or Field, near what is now St. Mary's Gate, and that St. Michael's was in Alport. The town originally clustered around the Roman camp, but in the wars with the Danes it was frequently plundered. When the Conqueror came into England, he granted the land between Ribbles and Mersey to Roger de Poitou; and the first record relative to the church after that was in 1150, when the then baron of Manchester, Albert Gresley, granted the church four bovates or ox-gangs of land. Opinion was divided as to whether an ox-gang was 10 or 25 acres. From this period the materials again became very scanty, but about 1192, in some charters of the Bishops of Lichfield and Coventry, we find the clergy of Manchester mentioned under the name of "deans." A few scattered notices were all that could be again found up to the year 1421. In 1313, La Warre was created Baron of Manchester, and about that time he built what was then known by the name of "The Baron's Hull," which stood between the confluence of the Irk and the Irwell, upon the spot where the Cheam College now stands. A few years afterwards there was a survey of the barony of Manchester, and a return made in 1332 states that "the church of Manchester, worth 200 marks, is at the lord's presentation, to which the Lord John de la Warr now last presented John Cuerden, who having been instituted in the same, possesses the endowment, consisting of eight burgages in Manchester, and the towns of Newtown, and Kermansholme, with the meadows, pastures, and other appurtenances."

Mr. Ashpitel referred to the number of Flemings who settled in England at this period, bringing with them their knowledge of manufactures and commerce; and to the marked progress which was being made towards a knowledge of science. He also referred to the breaking down of the monastic system, the introduction of "secular canons," and the founding of religious houses of the order of St. Augustine. From some cause, which was not clear, the church of Manchester was converted into a college of canons. The story told by Fuller to account for this was not corroborated by any other writer; and the charter granted by Henry V. mentioned nothing of the kind. As the charters relating to this conversion had been carefully preserved and translated and printed, he need not dwell upon them. The property was surrendered to the Bishop of Durham, in trust, to appoint a proper warden and make the necessary arrangements. He first appointed Huntingdon. Hollingworth, in his "Mancunienis," said, that Huntingdon "built the chancel and the choir, in the midst of which, before the altar, he lies buried with a suitable inscription." Hollingworth then mentioned that Huntingdon's rebus existed in the roof of the choir. His successor remained but a short time, as, having incurred the displeasure of Edward IV. he was fined and removed. The next warden was Langley, who was succeeded by one of the Stanleys, who gave up his place in a short time to James Stanley, the celebrated Bishop of Ely.

In the late Dr. Hibbert-Ware's excellent

work, there was a portion of an architectural history, written by a townsman, Mr. Palmer, who said that Huntingdon built the choir and the north and south aisles; but that this choir went up only to the height of the present arches, and did not include the upper windows or clerestory; also that he built portions of the chapter-house and the short aisle near the Derby chapel: in fact, that he commenced a church which was evidently intended to be transeptal. But further on Mr. Palmer stated what appeared to him (Mr. Ashpitel) as being very extraordinary, namely, that Warden Stanley (1484-1509) pulled down all Huntingdon's work, and built what we now saw. But being puzzled by finding Huntingdon's rebus (a man hunting and a tun) in the roof, Mr. Palmer supposed that Stanley took the old roof off, laid it on one side, and then put it on the new building. In his examination of the building, he (Mr. Ashpitel) was extremely struck by finding under the tower a doorway that must be about 100 years older than the time of the first warden. He had made a section of the moulding of this doorway, and compared it with another which Mr. Paley gave as positively of the date of 1330. He (Mr. Ashpitel) then passed to the extreme east end of the church, and there, at the Lady Chapel, he found the piers of the arch also of a positive decorated character. From the peculiar form of the shafts of the piers and their fillets, they decidedly belonged to the period from 1330 to 1350, sixty or seventy years before Huntingdon was elected, or the church was made a collegiate church.

It would be important for them to consider what stood upon the site before Huntingdon's church. Here he found a very curious thing indeed, and one from which, if he did not err, he thought he might bring forward a point of considerable interest. We were told by Hollingworth, and also "by the additional MS.," No. 5,836, in the British Museum (which had never before been quoted upon the subject, but which confirmed Hollingworth in this and other points), that a large wooden church stood there, which Hollingworth said was a species of large booth, similar to that in which the court-leet and court-baron were held, although it was probably much more adorned. Upon inquiry, he (Mr. Ashpitel) was told that a portion of this wooden church was to be found in a barn at Ordeal, and another portion in what was now a barn at Stand. Stand Hall belonged to the Stanleys, and was actually built about the time that Stanley was warden, and about the time when we might suppose the old wooden church to be removed. He went to Ordeal, and was there told that there had always been at that place a tradition that part of the old wooden church was there; "and," said his informant, "here are some of the timbers of it." [Mr. Ashpitel referred to a drawing of a portion of this barn, which, he said, belonged to a building evidently possessing the character of a nave and aisles, and which had been built upon the very best plan for constructing churches where stone was not used.] But upon proceeding to Stand, he found quite a different thing. Here the timbers shown to him resembled much more what might be supposed to have been part of a chancel. It had precisely the character of the roof of buildings known to have been erected in 1350; and there was reason to believe that the old wooden church was built in 1351. If it really were the case, that they then had under consideration part of the old wooden church of Manchester, it could not fail to be interesting to the inhabitants of the neighbourhood, as well as to antiquaries and architects, as showing what the ancient wooden church was.

It had been considered that the only wooden church now remaining was that at Greensted, in Essex; but Mr. Charles Bailey had made some researches in Worcestershire, and had made a sketch (referred to) of the church of Besford, which was wooden, and which still existed. This church had a positive square-headed decorated window at the east end; and it served to enlighten us as to the mode in which our ancestors built those churches, of which so much had been heard and so little is really known. In the church at Stand he found there was a window of a precisely similar character, only that it had four lights instead of two. He thought there was irrefragable proof that something of a stone building was

commenced long before the wardenship of Huntingdon, and that contrary to the authority of all that had been written upon the subject. This, however, tended in reality rather to fill up a gap, than to contradict what had been written. He had no doubt that the whole of the lower part of the present tower, up to the height of perhaps half the great west window, was of a period at least sixty or eighty years before Huntingdon's time. This part was decidedly of the decorated period; but above the height to which he had referred, work of a later period would be plainly observed—the stones were larger, and the tooth of time had not gnawed them so much as in the lower part. There was one curious circumstance, that the choir of the church was not exactly in the middle. The range of columns on one side were in a line with those of the nave, while on the other side they were drawn in considerably more. It was probable that the tower was commenced at the same time as the Lady Chapel. This kind of chapel was of a late introduction, there being nothing of the kind in any early Norman building. His impression was that these portions were commenced and were going on when Warden Huntingdon was elected. Mr. Palmer thought that the arch in the Lady Chapel had been altered by Stanley; but unfortunately for this theory, another rebus of Huntingdon was found in the arch. Hel (Mr. Ashpitel) held that Huntingdon built the whole of the choir and aisles; and it was more than probable that his intention was to have added two transepts; for there were two walls built, against which there was a moulding, now inside the church, of a character which, in ordinary circumstances, we never found except on the outside.

Mr. Palmer said that Langley (Huntingdon's successor) was recorded to have expended 28l. 13s. 4d. on that part of the church betwixt the pulpit and the people; and that although the record was very ambiguous, it might be inferred that it was on the church of Manchester that he made that expenditure. The British Museum Manuscript, however, said nothing of the kind; but it did say that Langley gave to the church bells and chimers. Old Dr. Cole had written in the margin, "This cannot be correct, as chimers were not known in England at the time;" but it was certain that within a few years of that date the chimers of Evesham were put up by the abbot of that place, so that it was not improbable that the old manuscript was right; and if this were the case, Manchester might claim to have possessed the first regular set of chimers in the country. Mr. Palmer said that Langley's 28l. 13s. 4d. was equivalent to 400l. of our money, which he (Mr. Ashpitel) thought was rather over-stating the point; but even if it were equivalent to 400l., that sum would go but a very little way towards building so large a nave. He thought, therefore, that Langley only commenced the nave, and that it was finished by the powerful Stanley, who succeeded him.

There was another reason for this. Both Hollingworth and the old manuscript said that Stanley built for himself and his relatives the chantry chapel now called Derby or Stanley Chapel; and there was some difference in the architecture there and in the nave. The history of the building to this point might be best elucidated by supposing that the work of Huntingdon was carried on by Langley as far as he could do it—perhaps about half-way; that it was completed by Stanley, who then built his own chapel and the beautiful little chapter-house. Stanley's example seemed to have created a feeling in Manchester, for which he (Mr. Ashpitel) knew no parallel anywhere else. Before the Derby Chapel could have been completed, the Jesus Chapel was built by Bexwith, a merchant of Manchester, in 1506; the Trafford Chapel next to it, was, according to Hollingworth, built in the same year; the St. George's Chapel was built by Galley in 1508, and the Strangeway's Chapel in the same year; the Oldham Chapel was built before 1519, and the Bibby Porch very soon after.

The incrustation of the church, with all these chantries, gave it the most picturesque effect that could be imagined. There was nothing like it that he knew of in England—it having five aisles—except at Chichester, and a portion of St. Michael's Church in Coventry. It reminded one of the mosques at Cordova



and other places, where you seemed lost in an endless perspective of column and arch; it gave a peculiar play of light and shade upon different parts of the architecture, which it could scarcely be credited could be given, and produced an effect which no other style of building could produce. If the unfortunate piece of tapestry in the choir were removed, the effect would be almost unequalled. The choir was certainly of remarkable beauty; the architecture was extremely light and pure, and the woodwork was of remarkable elegance; he scarcely knew anything in England to equal it. There were decidedly two species of woodwork in it—one of a ruder class, such as the western screen, and another of the most elaborate beauty and exquisite finish. There was nothing like it except at Winchester, which was said to be Flemish work; and it was not at all impossible that the work here had a similar origin. [Mr. Asphitel entered into further details with respect to the choir, and described some of the grotesques there.] He must mention, in justice to Mr. Palmer, that some time ago, when repairs were being made in the church, what was called a "water table" was found. From this circumstance, Mr. Palmer considered that the nave was only originally of one story. There certainly appeared somewhat of a later period in the clerestory windows, but from the great number of repairs which had been made, it was almost impossible to say what was original, on one side, and whether any original work remained. But if he (Mr. Asphitel) were right with regard to the wooden church standing against the tower, but before it was completed, and before Huntingdon's time, it would at once account for the existence of the water-table. It was not improbable that the altered character of the clerestory might be attributable to the changed architects under Bishop Stanley. With regard to the effect of the tower, its top was certainly very fine. It was the only instance in England in which the angle was crowned with three pinnacles, which produced a very picturesque effect, by getting a cluster at each angle.

Referring to the numerous repairs which had been going on in the church ever since at least 1685, Mr. Asphitel said that all those repairs and restorations had evidently been carried out with infinitely more care and judgment, and adherence to the original design, than was the case, under similar circumstances, in some places which the Association had the fortune to visit. There had undoubtedly been some things done which might be objected to; but this he thought might be mainly attributed to the ignorance which had existed with regard to the principles of Gothic architecture. He thought that, in the present day, with our increasing knowledge generally and our consequent veneration of the relics of the past—and with the increased knowledge which we now possess with respect to Gothic architecture—he need scarcely call upon the inhabitants of Manchester to regard with, he had almost said great affection and reverence, their fine old church. If his address tended to awaken among local antiquaries a desire to investigate more fully the points he had thrown out, he should feel himself amply repaid for the labour he had bestowed upon his research.

#### POTTERY AND PORCELAIN.\*

THE curious and interesting gossip with which Mr. Marryat's elegant volume is replete will doubtless render it an acceptable companion in every drawing-room. It would have gone directly to the heart of the master of Strawberry-hill. But its interest is of a far more general and more appreciable kind than to limit its attractions to mere collectors of crockery. We have here the first really popular contribution towards the historical development of a most ancient and instructive branch of decorative art, which will be found to shed a strong explanatory light on the innermost mysteries of domestic and social life, from birth to death, in the most remote antiquity, and down to the present time; and in connection with the author's own researches, which are limited to later ages, we are told that earlier epochs

are already under treatment in a similar style. Heretofore the majority of publications on this curious subject have been either learned disquisitions on the mythology of the Greek classical paintings, or, on the other hand, mere technical details of the manufacture of pottery and porcelain, while a knowledge of the different kinds appears to have been limited to the dealers.

"The existence of pottery," as observed by the author in his Introduction, "has proved of the highest value as an aid to historical research. From the pottery of the tombs we learn the domestic manners of nations long since passed away, and may trace the geographical limits of the various great empires of the world. The extent of ancient Greece, of its colonies, and its conquests, is clearly to be traced through each division of the Old World by the Grecian funeral pottery, which, distinct in its character from that of any other, long survived the political existence of the Grecian empire." The limits of the Roman empire are, in like manner, deduced from the remains of the Roman pottery: beyond the spot where Arminius repulsed the Roman legions, no trace of Roman pottery has been found, and the frontier line of the Roman dominion in Britain is marked out in a similar manner. The extent of the Mahomedan empire in the Old World, and the Aztec dominion in the New, would alike be clearly pointed out by their pottery if no other record of their conquests had been transmitted to us."

By some portions of the book we are incidentally led into the reflection that the ancients almost anticipated and stole from us an idea, exclusively, as we had thought, *THE BUILDER'S*,—namely, that terra-cotta—a sort of pottery, in fact—would be an excellent, because a cheap and durable, material for funeral monuments or tomb-stones, for the poorer classes, if inscribed with the names and genealogical correlations of the dead before exposure to the pottery fire. And though a departure so far from the subject, or, at least, the book, now under review, we must here further strengthen the argument against the virgin novelty of our own suggestion by a brief allusion to a recent discovery of ancient customs, still more to the point than any, it may be, to be gathered from known records, even when the present volume was written.

In the Ethnological sub-section of the British Association, held at Edinburgh lately, Dr. Hincks made some observations on the language and mode of writing of the ancient Assyrians. This called up Major Rawlinson, who made some remarks on the same subject, in the course of which he stated that Mr. Layard had, at Korjinyik, penetrated into a chamber which appeared to be of the same class as the "house of records" noticed by the prophet Ezra, where was found the copy of a decree of Cyrus, permitting the Jews to return from captivity. In this chamber Mr. Layard found, in terra cotta, tables piled up from the floor to the ceiling, and representing apparently the archives of the Assyrian empire during the long historical succession. Mr. Layard had packed, by the last accounts, five cases for transport to England; and these only occupied one small corner of the apartment.

Here, then, we find that terra cotta tablets inscribed with everlasting records, like Job's writing with a pen of iron in the rock, so far from being a novelty, are as old as any of the oldest records of human ingenuity.

In the first chapter of Mr. Marryat's volume we have some interesting remarks on plates of Moorish pottery used in ecclesiastical decoration, which we shall here quote:—

"Mr. Dawson Turner, in his unpublished journal, dated Pisa, October 18th, 1825, says:—'After having returned to the conservatoire the keys of the Campo Sancho, he was kind enough to walk and show me several specimens of plates from Majorca, embedded in the walls of sundry churches in the city, to which they form singular ornaments. It was a custom at Pisa, when the warriors returning from the Crusades and stopping at Majorca to bring home this peculiar earthenware by way at once of testimony and trophy. They are accordingly only to be found in the oldest buildings of the style that we in England should call Norman. In St. Sisto

and St. Apollonica, they are on the west front, and a row of them is also to be seen running along the sides under the cornice. In St. Francisco are some near the top of the campanile, which is very lofty. I afterwards observed others in the walls of two churches of about the same date at Pavia.'

Sir F. Palgrave observed similar plates on the campanile of a church in the Forum at Rome, also on the facade (of Lombard architecture) of San Giovanni in Ciel d'Oro, at Pavia, and under the eaves of San Pietro in Grado, outside the walls of Pisa: the latter were chiefly of a bright green, and covered with patterns which had every appearance of being Moorish.

The front of the Church of San Michele, Pavia,\* supposed to be of as early date as the sixth or seventh century, has been ornamented with pateræ of rude earthenware, coloured with blue and yellow. One or two yet remain, and circular holes show where others of the same kind had been inserted. Similar specimens are found in other buildings in Tuscany, and the Ciceroni, who are never at a loss for an answer, tell you they were brought from Palestine by the Crusaders.

Further researches have been since made respecting the Moorish plates existing in the walls of the Church of San Sisto, from which it appears that there are now very few remaining, and that all those which are under the cornice along the side prove to be merely plaster impressions, pointed to resemble the original plates, which have been stolen or taken away. On the west front there remain four of the original plates, which, from their comparatively inaccessible situation, have escaped the fate of the others. Drawings of these plates have been made, as well as of the mode in which they are inserted.

Notwithstanding the early period of the introduction of these specimens of Moorish pottery, it would appear that they remained a long time admired and venerated as religious trophies, before they were imitated, as there exists no record of any manufacture of majolica in Italy before the fourteenth century, nearly 200 years after the period already mentioned.

Luca della Robbia, born in 1388, was an eminent sculptor in marble and bronze, and worked both at Florence and at Rimini. Having abandoned his original employment for that of modelling in terra cotta, he succeeded, after many experiments, in making a white enamel, with which he coated his works, and thus rendered them durable. Vasari writes of him, 'che faceva l'opera di terra quasi eterne.' His chief productions are Madonnas, Scripture subjects, figures, and architectural ornaments: they are by far the finest works of art ever executed in pottery. He adorned the Italian churches with tiles, as well as with altar-pieces, in terra cotta enamelled; and he is the founder of a school which produced works not much inferior to his own. The 'Petit Château de Madrid,' in the Bois de Boulogne, near Paris, received the appellation of 'Château de Payence,' from having been ornamented with enamelled tiles, the work of an Italian artist, named Girolamo della Robbia, a grand nephew of Luca, whom Francis I. brought from Italy. This château is now wholly destroyed. The tiles seem to have been introduced into portions of the architectural composition, rather as accessory ornaments than as a 'lining' or revêtement of the walls. Analogous ornaments, the work of Luca de Maiano, 1521, were to be seen in the old gate, Whitehall, and at Hampton Court."

On the ancient and modern skill of the Chinese, Japanese, and other orientals, in the porcelain manufacture and decoration, there are many interesting particulars, amongst which perhaps the following, on the Porcelain Tower near Nankin, and the Chinese process of porcelain manufacture, may be worth quotation:—

"The tower was constructed A.D. 1277, and offers sufficient proof of the durable nature of porcelain. This building is of an octagonal shape: it consists of nine stories, and is very nearly 300 feet high: its entire surface is covered with porcelain of the finest quality. Although this singular and beautiful edifice has been erected nearly 600 years, it has hitherto withstood all the alterations of the seasons, and every variety of weather, without exhibiting the slightest symptom of deterioration.

Marco Polo, the Venetian, was the first European traveller on record who penetrated into China. He mentions the vast extent to which the manufacture of porcelain was carried at the time of his residence in the celestial empire, during the thirteenth century, and states, 'that of this place, Kinsai, there is nothing further to be observed, than that cups or bowls, and dishes of porcelain wares, are there manufactured. The process was explained to be as follows:—They collect a certain kind of earth, as it were, from a mine, and, laying it in a great heap, suffer it to be exposed to the wind, rain, and

\* "Collections towards a History of Pottery and Porcelain, in the 16th–18th Centuries; with Description of the Manufacture, a Glossary, and Monograms." By Joseph Marryat. Illustrated with coloured plates and woodcuts. London, Murray, 1850.

\* The Grecian funeral pottery existed as a manufacture, perhaps, not less than 1,200 years; from about the ninth century before the Christian era to about 350 years after.

\* See Murray's Handbook of North Italy, under the head "Pavia."



sun, for thirty or forty years, during which time it is never disturbed. By this means it becomes refined, and fit for being wrought into the vessels above mentioned. Such colours as may be thought proper are then laid on, and the ware is afterwards baked in ovens or furnaces. Those persons, therefore, who cause the earth to be dug, collect it for their children and grandchildren.\*

The Portuguese traders, who first doubled the Cape of Good Hope, were the means of introducing the fine wares of China into more general use in Europe; and the name assigned to the fabric, as distinguishing it from the coarser descriptions of pottery, was probably given by them, 'Porcellana,' signifying, in the Portuguese language originally 'a little pig,' and afterwards 'a cup.' This term has been applied by the Portuguese to the cowrie shells.†

Some interesting historical details on the subject of tiles, English, Flemish, Norman, Mahomedan, Persian, and others, which our limits prevent us from doing more than merely indicating, will be found in the appendix, pp. 290-5.

The work is full of curious or tasteful specimens of articles in pottery and porcelain, both in shape of woodcuts and of other engravings on a larger scale, illuminated with metallic and other colours, and the whole book is beautifully printed throughout, and altogether a credit to Mr. Murray as a publisher.

#### ON LINEAL EXPRESSION AND ARCHITECTURAL DESIGN.†

##### SHADOW AND ORNAMENT.

HAVING considered as to the nature of the forms productive of beauty, &c., let us see how Shadow and Ornament produce or aid the same.

Shadow is the inseparable companion of actual form; it is born, as it were, of it by Light, and becomes capable of expression, as it reflects its parent, or defines its receiving form. The wonderful and splendid power of shadow is a thing which the architect of late times seems studiously to have avoided. It is as though the painter were to give up his *chiaro oscuro*, and depend on outline alone.

This is more excusable in the painter, for such is the wondrous perfection of the beauty of the human figure in form alone, that it possesses singly a deep and overpowering charm: but this perfection the architect cannot obtain, on account of the great admixture of straight lines in his work; therefore it is, that shadow should be of such consideration to him! and such is its power that, although the building and ornament be actually bad, as regards form, as in many of the Byzantine churches of Italy, yet this one cause will by itself redeem them, and excite a profound impression. What, then, can be more unaccountable than to neglect the study of it?

In lands such as Italy and Greece, where the sun's constancy and the clearness of the atmosphere are pretty well assured, the component parts of the buildings are not remarkable for their power of shadow,—it is the light which predominates; their beautiful outline, touched by beautiful light, stands forth clearly and distinctly against a blue sky. The beauty of form has been their aim, and most sensibly, for it was a power peculiarly fitted for development in their climates; and as the noblest power always received the deepest attention from that wonderful race the Greek artists and architects, I cannot help thinking that this was probably a chief motive in placing their temples in a clear space, or on elevated spots. Not that they neglected shadow, but rendered it, as it ought abstractedly to be, subservient to form, and ornament subservient to both: they are, indeed, perfect works of art in these countries, for they are excellently consistent with themselves and with all nature around them.

Unfortunately we live in a land peculiarly unfitted for the development of sculptured art in the open air, both as regards form and shadow, because a clear atmosphere and the sunlight are requisite for each. It is in atmo-

spheric clearness we are most deficient, and our first consideration should be, how to suit form to it. It is evident that the profiles of Greek and Roman mouldings, perfectly expressed in Greece or Italy, cannot be perfectly expressed in England, nor can the projection of mouldings or other parts have the same effect here, for our misty atmosphere, especially in cities, deadens the outline of the moulding by assimilating it to itself, and obscures our medium of sight; and the projection, whose effect depended on the presence of sunlight, cannot be equally fitted for the absence of sunlight; the same with recessions. Now is it not clear and reasonable, that the predominant means of producing effect should be the predominant cause of effect? And if the presence of the sun is more frequent than the presence of atmospheric clearness, then the sun should be the predominant cause of effect. But the sun, though it predominates, does not shine constantly, and thus, though the building should be more adapted for sunlight than atmospheric relief, yet it should be independent of either in their perfection. Sunlight and atmospheric clearness are not concomitant with us. It is no exaggeration to say that our atmosphere never attains to the clearness of southern countries, and is materially unfitted for the proper development of true Grecian or Roman profiles. The sun does often shine, and is excellent for the expression of shadow, even in smoky cities, but the atmosphere is never clear enough to be fitted for the development of delicate profiles. Which, then, should claim our first consideration in design? Beauty of profile must succumb in this country from its highest place, and be content to reign in conjunction with shadow, if not to be subservient to it. And it was the perception of this necessity which forms one of the great charms of Gothic and Norman architecture, and was the under idea of Sir C. Wren, as evinced in the detail, the ornament, and the massing of his buildings.

For shadow is so indispensable to the development of perfect character in a building, that when nature is not favourable to its production, all that human art can do should be done to gain it.

That the necessity for shadow is not however the same in all classes of buildings may well be supposed; for instance, the grander or stronger the character to be expressed, the less need there is of it. We may see this as regards grandeur in the pyramids, in the wall of the forum of Nerva, and the walls of fortified towns. And as regards strength, in the Pitti palace, Florence, and the generality of Tuscan palaces, the Palazzo Thune, Vicenza, the Palazzo Farnese (north), and most of the Roman palaces.

In all these, the simplicity of the form being essential to their effect, it follows that the shadows should possess the same character, and any complicated or broken shadows given them would be wrong, because not consonant with the nature of the containing forms. The most remarkable union of strength and shadow perhaps to be seen is St. Paul's, Covent-garden.

But, for the full development of a more truly beautiful character, we may turn to the temples and monuments of ancient Greece and Rome, where, as before remarked, shadow is carefully studied, and expresses the beauty of the various forms, as in the fronts of the Parthenon, Pantheon, the triumphal arches, the Coliseum, and in modern works, in the Basilica Vicenza, the Loggia of the Vatican, the Palazzo Bevilacqua, Verona; the Lion's-court of the Alhambra; the Library of St. Mark, Venice; Whitehall.

There can evidently be no rule for the quantity of shadow, appropriate to so many different grades of the beautiful in architecture, but we may be pretty sure from these excellent examples that the shadow should be of a medium power, not superior to the form, and consequently that all projections and recessions in massing or ornament should be of a medium character also, obtaining neither the largeness of the grand, nor the brokenness and depth of the picturesque.

To the picturesque, however, shadow is most necessary, and to a great degree indispensable. The proofs are so numerous in the architecture of the north, that it seems needless to mention them. Where is the Gothic

or Norman building that in its porches, arches, mouldings, ornament, and plan, does not show this?

As to the relative examples of shadows as adapted to the expression of form, among painters one might mention Michaelangelo, and Volterra, Raffaele, Leonardo, and Guido, Salvator and Rembrandt.

Whatever style of architecture we adopt, it is not sensible to make use of those exact forms of mass or detail which were intended for an entirely different climate, and for an effect which we in England can seldom, if ever, hope to obtain. But the shadow which nature has denied us may still be gained by the effective, because sensible practice of northern art, deeply-cut mouldings, great recession of apertures, or great projection if the nature of the wall does not admit of the former, and ornament thoroughly pierced,—all will hold shadow in themselves, strong and expressive, though no sun should touch them, and are doubly charming when so relieved. It does seem a great fault in the architect's education that the importance of this subject should be so generally neglected, and that his art should be taught him as a matter of mere outline, form, or proportion; that, in fact, the effect of a single voice should be so cultivated, whilst the additional charm of a second is almost ignored.

But in designing, it should be remembered, that parts which hold shadow in themselves, such as mouldings, ornaments, &c., should not be confounded with those which shadow another part; as in eaves, angles, walls, and detached columns. These do not hold darkness to nearly the same degree, and this degree is weakened as they extend or project. I know of no case where the extra and needless expense of detached columns is more seen than in the School of San Rocco, Venice, facing the north.

As regards ornament, under which head we will not at present consider mouldings, but the design and cutting applied to them and carver's work in general, the first requirement is, that the work should be good in itself, consistent with the character of the building, and expressive of its purpose; well and carefully cut as it approaches the eye, more deeply and roughly cut as it is distant.

The actual objects to be applied, who shall determine? For Nature, in her infinite variety, is given us for a storehouse: it is in the appropriation and application of her resources that the true artist is shown. In saying this, I do not say discard the standard ornaments of any style; in every such style we and the world also have a fixed idea from habit of the ornament fitted to it, which should be deviated from with the greatest caution, because also it grew with each style, and in each fulfils its purpose: even the extra depth of cutting necessary in some styles to obviate the obscurity of the atmosphere should be carefully done; or we shall do that which opposes the general character of the building. Wren has shown great judgment in this respect. Italian architecture has been fitted by him as far as it ever can be, in form, shadow, and ornament, to the requirements of our land; and he who should Gothicise it still more would soon find himself verging on another style, bearing more of what is called Elizabethan character. It is necessary to mention one custom of this period (Wren's) which is earnestly to be deprecated, viz., the exact imitation of the object represented, placing aside the cut-up appearance it produces, as may be especially seen in the festoons at Hampton Court. It is against the just principle of consistency, for, as architecture is in a great degree unnatural, that is, the exact copy of no type in nature, so also should architectural ornament not be the exact copy of any natural model. Moreover, in choosing the model, great care must be taken that it has in itself an expression analogous to the style, as shown in the application of the ivy, vine, thistle, and picturesque foliage and figures in Gothic art; and in the egg and tongue, volutes, honeysuckles, and beautiful figures in Grecian art; and here it may be remarked that the pervading character of the mass is constantly, if not always, exaggerated in the mouldings and ornaments, which not being so immediately or individually perceived, aided nevertheless in producing the effect. Thus, for instance, the mouldings of ancient Greece

\* It is rather an odd circumstance that in Scotland pottery or porcelain of all sorts is occasionally called by the vulgar, "pigs." And we may here note, too, on Coleridge's idea that words of similar sound have often had an origin so closely connected as to involve something more than a mere pun, however absurdly or ridiculously disconnected they may now appear, that a whole tribe of oriental porcelain ware was called "Celadon," a name still used in France.

† See p. 338, ante.



or Rome, and any concomitant figures or foliage, are more graceful than the expression of the general mass or outline, which is beautiful, and, in northern architecture, are more grotesque than the general character, which is picturesque. J. B. W.

#### ORIGINALITY IN ARCHITECTURE.

I FEEL a strong inclination to send you a sort of exposition of the principles on which I have made an endeavour after original architecture in the design, bearing my name, in the Architectural Exhibition,—the "Design for a Contemplated Public Building." Perhaps I run a risk in thus taking myself for my text; but, as I have assumed somewhat of the position of a reformer, and have been met with the reasonable maxim, that the faultfinder ought to supplement his theory with practical improvement, I am glad to have an opportunity of making an endeavour, and I hope I need not allow false delicacy to prevent me from explaining to my fellow-workers what my endeavour is.

I have only one prefatory remark to make:—it is not fair to call upon the theoretical reformer for practical proof till the opportunity is afforded him. If young minds now-a-days denounce non-originality, it is not therefore reasonable to demand of themselves at once all things new: it is something, and a great thing, to have conceived the idea,—to have attained the theoretical and abstract fact, however bare and yet unfruitful it may be; and a generation, perhaps, may pass before the theorizer in his maturity of thought and opportunity produces the proof, or even another and another generation before the difficult task is accomplished by his children. Therefore, he does his best for reform who avails himself of the opportunity,—uses his most careful endeavour to accomplish perhaps a small beginning, and hesitates not to explain how he has attempted it. In my present endeavour I do not know that I have succeeded: the fancied success of to-day is often too plainly seen to be a failure to-morrow; but certainly your own kind notice last week, in passing, seems an evidence that, whether I have or have not accomplished all I have aimed at, I have, at least, accomplished something from which a lesson may be drawn.

My purpose, then, is, primarily to form a building of chaste and majestic front; in two stories,—the lower for the apartments of every-day use, and the upper for the public or show apartments.

It occurs to me that what is called "an order," or properly a colonnade, may serve my purpose well as the principle of the chief story. I will not, of course, form a colonnade to embrace both stories; but the lower must be a basement. I desire a simple and plain character. Let me have, therefore, a simple and plain column. I will try a square column. All the "orders" in dogmatic use are round. But I do not see why this should be so: on the contrary, I am inclined to think a square stone column is, perhaps, more correct aesthetically. A square column, moreover, will be a good fundamental idea for simplicity; and in the squareness of the column, also, I fancy I can see a principle for mouldings and details generally. In the mouldings I see no need for more than the fillet and the cavetto: such features as balusters and cornice modillions may be plain rectangular blocks, and the base plain gradations.

A principle which I take for granted is, that the vertical structure must connect itself with the horizontal ground by a spreading stylobate, and that the vertical line must be turned outwards again by a counter-balancing cornice. (The rationale of this I think I argued at length in your pages some four years ago.) From this I deduce cap and base, stylobate and cornice, and so on as the case may be. A heavy stylobate, by the bye, is a noble feature.

I must have doors and windows,—or rather entrances and light. I must keep up the integrity of my colonnade; and this may be a difficulty. No: I will merely make my wall work a screen between the columns, admitting light over it. And for honest design I ought to keep up the colonnade in the interior, which in these days of plate-glass may be easily done as I have shown,—each window being formed of a single plate to show the colonnade in its

pure principle. The doors are no difficulty, and the window opening is above as usual.

Whether to make the roof appear or not is an important question. After trying the roof in many forms without success, I try the parapet; and this, if an open balustrade, is not, I think, incorrect in principle, although there is, perhaps, something in it scarcely so satisfactory in theory as if the roof were made part of the design. Moreover, it will be found, I think, that a parapet has a greater effect where dignity of façade is the object. The pediment suggests itself,—but this does not serve my purpose, even if I were more satisfied than I am of the correctness of its principle. I choose the parapet, therefore, although under a sort of protest.

To keep the basement free of windows conduces to the majesty of effect; and as I can manage it conveniently, I place windows in the end and back façades alone.

The aim of the whole design is severe simplicity, with no more magnificence than may be proposed for execution.

If you should still pass upon my work even a partially favourable verdict, the careful thought which it has cost me will be amply repaid; and if, on the other hand, my attempt should be considered to be rather a failure, it will at any rate serve to illustrate what it is that I have meant when I spoke of the process of original design. ROBERT KERR.

#### RAILWAY JOTTINGS.

THE cast-iron roof of the Bricklayers' Arms Station of the South-Eastern line gave way on Wednesday afternoon, and the whole, extending 400 feet in length, and in two spans of 50 feet each in breadth, came down with a crash like a discharge of artillery, the whole range of buildings being at once reduced to a mass of ruins, the front wall only with the tower left standing, but in so dangerous a condition as to be every moment expected also to fall. At the time there were a large number of carriages under the sheds, and also men at work: labourers were at once employed to search, and shortly after succeeded in rescuing several porters, frightfully injured, and one quite dead. Various causes are assigned for this sad affair, but that most credited is, that while some of the workmen were engaged in turning carriages on a table, a buffer struck one of the upright pillars of the station, which so shook the whole fabric as to cause its fall. This station, it may be remembered, was erected in 1844 on the site of one, a portion of the roof of which had previously fallen, with loss of life also. A great number of men have since Wednesday been actively engaged in searching the ruins for the purpose of ascertaining whether any other parties are buried beneath the immense mass of iron and stone work. The northern line of roofing stands entire; but, from the fact of the other two forming its main support, the men were obliged to place poles against it, to prevent it also from toppling over. At the time of the disaster there were from 150 to 200 workmen there, but it is believed no passengers or strangers.\*

—The recent opening of the Great Northern to Peterborough has turned public attention to the remainder of the line as yet unfinished. That part of the main trunk to the north of Retford being mostly completed, the company have now commenced operations between Retford and Peterborough, and Messrs. Oldham and Sons have contracted for that portion of the line between the former town and Newark. These gentlemen having obtained possession of certain tracts of land in the neighbourhood of Tuxford and Markham, where the heaviest portions of the works lie, have set on a number of hands at Tuxford. An understanding as to fares and tolls, it is said, has been come to with the London and North-Western.—The opening of the bridge over the Tweed, at Berwick, on the York, Newcastle, and Berwick line, by her Majesty and the Prince, has been fixed for the 29th inst.

\* When time and inquiry shall have elicited, if possible, some further insight into the mysterious cause of so much mischief, we shall, of course, recur to this very serious and most startling event; but a most searching investigation as to its cause must be made, but too obvious, and that we will narrowly watch the progress and result of that investigation we need hardly state: meantime all that we or any one can do, under present circumstances, is to report the facts together with the rumours current at the time of going to press.

when also the central station at Newcastle will be opened, for the reception of the royal passengers.—The last lift of the last tube of the Britannia Bridge was completed amid much acclamation on Friday in last week, and everything is said to progress so satisfactorily that the entire structure will be opened a fortnight earlier than was expected.—The engine drivers and firemen of the Eastern Counties have struck. They complain of unjust fines and capricious discharges for the purpose of getting rid of them for less experienced but cheaper men. New hands have been appointed in their place, and the old have been looking closely into their characters and accomplishments. Meantime the directors have suspended or discontinued the running of no less than eight daily trains, including "all trains on the Maldon and Braintree branches." The old hands declare that they will not return under the present superintendence, and they have submitted propositions which the directors have refused to comply with. The latter have, however, remitted fines complained of, and paid the wages of those suspended for alleged faults. The drivers and firemen, since their resignation, have had various meetings and deliberations on the subject of their grievances, and the directors, on the other hand, have issued their version of the case, in the form of communications in the daily press. It is not easy, at present, to form any clear opinion on the subject.—On the subject of railway comforts at home and abroad, Mr. Dickens, in his *Household Words*, has the following, among other remarks:—"On the French railroads (setting aside the question that the fares are much lower), the second class carriages are comfortably cushioned, having pretty silk blinds to keep out the sun; windows that really are capable of being pulled up and down, besides hooks for hats—a great convenience on a journey. In winter, in an English first class carriage, there is no protection against frost and damp; but in nearly all the foreign railways, no sooner does the winter set in than the first-class traveller finds the bottom of his carriage provided with a long tin case full of hot water. Comfort in railway travelling, is, however, brought to the highest perfection in Germany. An esteemed correspondent at Vienna writes to us on this subject in the following terms:—

On the *Wiener Neustädter Eisenbahn* (Vienna and Neustadt Railway), the carriages of the first, second, and third class may each be said to resemble a spacious room, furnished with seats, something like a concert-room, and having a broad passage down the middle. Attached to each carriage, and going the whole length of the train, is a broad wooden plank, along which the guards are constantly walking, so that the slightest thing amiss could scarcely occur without their perceiving it immediately. Just before the arrival of the train at any station, one of these functionaries quietly opens the door, and, instead of calling out, walks without any hurry or bustle down the division from one end to the other, repeating, in a clear and ordinary tone of voice, the name of the station approached, and requiring the tickets of such as are to alight there. With such an arrangement—giving ample time for the gathering together of coats, canes, umbrellas, reticules, and so forth—even Martha Struggles herself might have got through a journey unscathed and 'unflustered.'—The railway calls for the month of August, so far as they can be at present ascertained, amount to 195,936l. against 1,154,527l. at the same date last year. The proportion called by foreign companies is 22,211l. In August, last year, there were no calls by foreign companies.

—On Friday week a locomotive engine, only 10 tons in weight, instead of 25, arrived at Waverley-bridge from Glasgow, with a train of six carriages. The engine is said to be on the principle of Adams's patent, designed for short distances, and is only to be attached to a single carriage, capable, however, of carrying about 100 passengers. The experimental trip was understood to have been quite successful.—Lord Brougham, in the House of Lords, has affirmed a decision of the Lords Commissioners finding provisional committees not liable, by mere consent to have their names on the list of provisional committees, to be called on to contribute to expenses afterwards incurred.





C. L. LANGE.

HORNBY CASTLE, LANCASHIRE.—MESSRS. SHARPE AND PALEY, ARCHITECTS.

[See p. 397, contd.]



SIGN-LAMP AT  
MANCHESTERGeorge Truett Arch<sup>t</sup>

See page 397, ante.

## THE BUILDING IN HYDE PARK.

At a meeting recently held in Bakewell, Mr. Paxton gave the following particulars of his intended building. He said it would be 2,100 feet long by 400 broad. The centre aisle would be 120 feet broad, or 10 feet wider than the Conservatory at Chatsworth. When he commenced designing this building he knew that so vast a structure as this must necessarily be made as simple as possible in its details, else it would be impossible to carry it out. He therefore endeavoured to make it up with as few details as possible. The glass and its iron supports comprised the whole structure. The columns were precisely the same throughout the building, and would fit every part: the same might be said of each of the bars; and every piece of glass would be of the same size—namely, four feet long. No numbering or marking would be required, and the whole would be put together like a piece of machinery. Mr. Paxton explained that the water is brought down valleys on the roof, and thence down the columns; that the water in no instance has farther than 12 feet to run before it is delivered into the valleys or gutters; and that the whole is so constructed as to carry the water outside, and the condensed water inside. The building is divided into broad and narrow compartments, and by tying these together there is little for the cross-ties of the centre to carry. The building is entirely divided into twenty-four places—in short, every thing runs to twenty-four, so that the work is made to square and fit, without any small detail being left to carry out. The number of columns, 15 feet long, is 6,024: there are 3,000 gallery bearers; 1,245 wrought-iron girders; 45 miles of sash bars; and 1,073,760 feet of glass to cover the whole. The gallery of the building would be 24 feet wide, and would extend a distance of nearly six miles. Now if, after the purposes of the exhibition are answered, it was thought desirable to let the building remain—and he sincerely hoped it would not be pulled down nor shipped to America—if they chose to let it remain, see to what a purpose it might be applied. There might be made an excellent carriage drive round the interior, as well as a road for equestrians, with the centre tastefully laid out and planted, and then there would be nearly six miles of room in the galleries for a promenade for the public. With regard to the ventilation and the rays of light, he would say that the former was a very peculiar part of the plan. The whole building four feet round the bottom will be filled with louver, or “luffer” boards, so placed as to admit air, but exclude rain. On the inside of that there will be a canvas to move up and down, and in very hot weather it may be watered and the interior kept cool. The top part of the centre building is put up almost entirely for the purposes of ventilation; and he thought it would be found that, if he had erred at all in respect of the means of ventilation, there would be found too much rather than too little. By covering the greater part of the building with canvas, a gentle light would be thrown over the whole building; and the whole of the glass at the top of the northern side of the building would give a direct light to the interior.

This, it will be remembered, is the projector's own statement, not ours.

## BUILDING WORKS IN IRELAND.

THE Poor-Law Commissioners are erecting the following union workhouses through the country, according to drawings furnished by their architect, Mr. George Wilkinson; viz., Killydysart, county Clare, to cost about 5,000*l.*; Skull, about 5,000*l.*;—Clonakilty, about 5,200*l.*—both in the county of Cork. Also one at Dromore West, cost about 4,500*l.*; and at Newport, county Mayo, cost about 5,100*l.* There have been plans, &c. furnished, and tenders received by Mr. John Louch, architect, for additions to St. Mathias's Church, Dublin. The style of the present building is Grecian. There is also a school-house in connection with this church in progress of erection: cost, when complete, will be about 1,000*l.*; the drawings, &c. have been furnished by the same architect.

The Society of Ancient Concerts are erecting additions to their concert-rooms, Dublin,



consisting of new dining, drawing, and practice-rooms, at rear of present buildings: the plans are by Mr. N. Jackson, architect: the cost will be about 1,500l.: Mr. G. Farrell, builder.

The Museum of Irish Industry, Stephen's-green, Dublin, is nearly finished: it has been erected on the site of the late Lord Mansfield's mansion, and embraces the two adjacent houses: Mr. Geo. Papworth is the architect.

The Board of Superintendence, Kilkenny, are erecting large additions to their gaol, for the accommodation of an increased number of inmates. The style of those buildings now in progress is Early Norman; the designs were selected from a number of others in competition: Mr. Wm. D. Smith, Dublin, is the architect.

The Board of Superintendence of Newry are adding considerably to their bridewell. The drawings have been supplied by Mr. W. F. Calbeck, architect. The cost will be about 1,300l.

The Board of Public Works are erecting a wing building, and adding an additional story to part of the Lunatic Asylum, Grangegorman-lane, Dublin, for the reception of a larger number of lunatics.

The Royal Arcade Hotel, Dublin (Mr. Anderson, proprietor) is being considerably augmented. Mr. Calbeck, architect. The style is Italian.

There is a new court-house erecting at Newtownards, from the designs of Mr. Calbeck, to whom the premium of 25l. was awarded in competition for the same. The cost will be about 2,000l.

The Ecclesiastical Commissioners have advertised for tenders for altering and repairing the churches of St. Paul, city of Cork; Ardnageehy, Ballycotton, and Carrigrohane, county of Cork.

The Great Southern and Western Railway Company are at present laying out thousands of pounds at the Blackwall terminus, Cork. Extensive stores and offices are being built, and as they are all fire-proof, no such accident as the late burning of the station-house can again occur. The company have arranged with Mr. Paul M'Swiney, of that city, for the erection of an extensive iron roof, resting on metal pillars. A considerable portion of the work is complete. An adjacent iron bridge has also lately been constructed, the materials of which were supplied from the foundry of Mr. M'Swiney. In consequence of the number of men employed at the terminus, and the necessity of having the officers on the spot, the directors have resolved on building a large square of houses, for station-master and men employed to reside in.

The Roman Catholic Chapel of St. Columbkille is about being erected at Clonmore, county Louth, from the designs of Mr. John Bourke, architect. The style is Gothic, of the middle period—the plan cruciform. At the angle of the south elevation there is to be a large square and lofty tower, with buttresses, and surmounted by a spire.

#### THE BUILDINGS OF ANCIENT GREECE.

PROFESSOR RANGABE read a paper at the recent meeting of the British Archaeological Association, on the additions made to our knowledge of Greek art by recent discoveries, from which we extract those portions that relate specially to architecture.\*

"In Arcadia—the dwelling-place of the Pelasgians, who pretended to have seen the creation of the moon, and who at least preceded the Hellenic race—polygonal walls are discovered every day; and in a valley unknown to travellers, between the Lake Stympthalus and the Mount Trachys of Orchomenos, I had myself the happiness, two years ago, of discovering at the very spot where Pansanius (viii. 23) places it, the town of Halea, long sought for, and not as yet perceived by any of my predecessors. This ruin presents one of the most imposing examples of Pelasgic architecture, and at least two-thirds of it are in a state of rare preservation. Its form is that of a triangle, whose basis lay along the foot of the mountain, and whose two sides rise up on its flank. The latter only are standing, and they attain often a height of 5m., and contain

37 square towers. A parallelogram traced on the summit of the triangle, forms the acropolis of the fortress, whose walls are composed of gigantic polygonal blocks, and the lintel of whose doors consists of two inclined stones, which mutually support each other.

But in Argolis, the very seat of the power of the Atreides, the discoveries have not been few. At the same time with Halea, I saw in a little valley, separated from the Argolic plain by a rising ground, and quite close to Mycenæ, a square edifice till then unknown, of the finest polygonal style, each side being 11½m. in length, and rising in perfect preservation to the height of 3m., where its coping still exists. The interior was divided into three compartments, but the separations are almost entirely destroyed. This monument is one of the most interesting that has yet been discovered, as it discloses to us a particular branch of Homeric architecture. It is difficult to believe that at so short a distance from Mycenæ, an edifice belonging to the class of those which excited so highly the admiration of the ancients, should remain unnoticed by them. I am therefore tempted to suppose that this is no other than the tower of Polygnotus, as it was called, where Aratus, on his way from Argos to Philus, had a meeting with his conspirators. (Plut. Vit. Arat. 6 and 7.)

I was present at the excavations made at Tyrinth by the illustrious German antiquarian, Thiersch, and I witnessed the highly interesting result which he obtained. On the western side of the hill of the Cyclops he discovered a range of bases of columns; and this fact, combined with the column already known in the Treasury of the Atreides, and that of the basso-relievo of the lions at Mycenæ, tend to modify the ideas held until now on Pelasgic architecture, and to prove that the principle of the columns—of a primitive form, undoubtedly, but containing the germ of the diverse forms developed later by the Dorians and Ionians—was, if not an indispensable part, at least an ornament frequently employed in the buildings of Homeric times. Another discovery of the highest importance to the architecture and ethnological history of that remote period, has just been made in the south of Ebea. Walpole had already seen and described (Travels, vol. i.), on the summit of Mount Ocha, an edifice of a peculiar form and of an archaic style. Its walls are composed of very large parallelogramical blocks of unequal dimensions; and its roof consists of several layers of stones, which advance on each side towards the centre, jutting out considerably the one beyond the other, instead of forming a smooth surface as in the treasury at Mycenæ. But from this specimen of architecture, curious as it was, from its differing from the usual forms of ancient art, no conclusion could be drawn to further our knowledge of that art, because it only furnished one isolated example. But at Styra, the town famous for its quarries, situated at the northern foot of the same mountain, the discovery was made, a few years ago, of three buildings of the same nature, one of which is peculiar for its roof being circular. On another peak of Mount Ocha, I myself visited, only last summer, several edifices, the evident remains of a very ancient town, suspended on the brink of an abyss, equally inaccessible by sea or by land, and known only to the shepherds of those wild regions, who give it the name of *Archanpolis*, or ancient town. These buildings are constructed on the same architectural principles; and I have heard another position described not far from the Cavo d'Oro, as the Venetians called the Caprea, where more such ruins exist. \* \*

But the discoveries made in Greece since her emancipation have not less served to rectify and to extend the notions already possessed on Classical Architecture. The Propylea having been disencumbered from the modern fortifications which concealed them from view, and having now reappeared in all their ancient harmony, it is easily recognised that their magnificence corresponded fully with that of the immortal monuments to which they gave access, and that their superb flight of steps occupied the whole width of the entrance to the Acropolis, descended probably to the Agora, and was ornamented on either side by terraces supporting statues and temples. One of the latter, the Temple of Victory without

wings, the finest jewel of the Acropolis' crown of monuments—which had disappeared between 1676, when Spohn and Wheeler travelled in Greece, and 1751, when Stuart visited it—now discovered again under a Turkish bastion, and restored, offers to study one of the purest and most perfect examples of the tetrastylos amphiprotylos of the Ionic order which exists in the world. The mouldings of its entablature, as well as those of the Propylea and of the Parthenon, bear evident traces of painted ornaments, and put it beyond all doubt that the ornamental parts of the temples were painted in Greece, like those of Sicily, in the time of Pericles, as well as at more ancient periods, when they were often replaced by terracotta. In the Pinacothek, which contained the famous pictures of Protogenes, the walls which the French or Catalan dukes had constructed to convert this part of the Propylea into their Chancery having been destroyed, the original partitions have been brought to light; and I think that the examination of these and of the walls of the Temple of Theseus, may give the solution of the question which has been the subject of so much controversy, namely, whether the ancients painted exclusively on the walls or on panels of wood, by proving that the Pinacothek was covered with panels, or, rather, moveable pictures; whereas the paintings in the Temple of Theseus were executed on a stucco fixed to the wall itself.

The Parthenon, in spite of the exact and conscientious work of Cockerell, when delivered of the barbaric ruins which insulted its grandeur, had still secrets to disclose; and it is well known that attentive observations have taught the astonished architects of modern times, that of all those lines whose magnificent harmony is the source of the inimitable beauty of this edifice, there is not one which is a straight line; that with a depth of science which would put to fault the calculations of the profoundest mathematician, the architect, imitating nature who avoids a straight line in her organic productions, had composed a system of curves beyond the skill of modern art to combine or reproduce.

The Erechtheum, that enigma of architecture, can also be better understood since it has been raised from its ruins; and in my opinion it is now evident that this Temple was double, in spite of its having four names, and that the singular distribution of the house consecrated to Erechtheus which it replaced had been adopted in its construction."

#### CHURCHES AND SCHOOLS.

THE new church at Rushall, Tunbridge Wells, was consecrated by the Archbishop of Canterbury, on Wednesday last. This new church is dedicated to St. Paul, and is a cruciform structure, with a south porch and a vestry on the north side of the chancel. The style is Early English. The walls are thick and are constructed entirely of the stone of the country, from Mr. Powell's quarry. It is capable of containing 430 adults and children. The nave is internally 57 feet long and 25 feet wide, and is lighted by nine single lancet windows on the north and south sides and two in the west end, which has also a spherical foliated window in the centre of the gable. These windows have bold splays, which are formed into trefoil heads from the springing line. The transepts are 17 feet long, and 17 feet wide, and have triplet windows in each gable. The north transept has a trefoil opening to the organ gallery, and a similar doorway on the west side. The tower is 23 feet square externally, and is supported by bold splayed piers and arches with the additions of shafts and mouldings to that arch only that faces the east. The chancel is 27 feet long by 17 feet wide, and is raised two steps above the remainder of the church. The walls are perforated with an enriched triplet window at the east gable and three trefoil lancets on the sides. The shafts in the chancel are of polished Derbyshire marble, with Caen stone capitals, &c. The roofs are open throughout and stained. The tower is 78 feet high. The octagonal stone turret terminates under the upper stage, and the belfry has four moulded lancets opening on each face, with corbelled parapet. The roofs are covered with Staffordshire tiles; and quarries from the same county are used

\* Reported fully in *Literary Gazette*.



for the floor and the aisles. Minton's encaustic tiles are laid in the chancel, and the steps and borders are formed with Hutchisonised stone. The sittings are of stained deal and the pulpit of carved oak on a stone base. The font is of Caen stone, with carved foliage, in eight compartments. The stained glass in the nave was from Messrs. Powell's manufactory, Whitefriars, and, together with the font, altar-cloth, and communion plate, were donations. Mr. Henry J. Stevens, of Derby, is the architect of the church, and in the superintendence has been assisted by Mr. N. E. Stevens. The works have been executed by Mr. Constable, of Peshurst.—The building of the new church and schools at Forest Gate, West Ham, has commenced, on a site nearly facing the Pawnbrokers' Almshouses.—The chief stone of the Free Grammar and Commercial Schools at Loughborough was laid on Friday week.—The restoration of Whitwick Church has been so far completed that the building was to be opened on 20th inst.—A new church and a Catholic chapel are to be shortly erected at Banbury.—The new Wesleyan Chapel, built in East-street, Southampton, was opened on Friday week. It holds 1,100 persons, and will have cost 4,000*l.* building and fitting. It is in the Decorated style. The open roof and the pews, &c., are stained in oak. There are some evident departures from the architect's design, according to a local paper.—The foundation-stone of a new school was laid at Inkberrow on Thursday week. It will accommodate 150 children of both sexes; estimated cost, 500*l.* Mr. Perkins, of Worcester, is the architect, and Mr. Robinson, of Redditch, the builder.—The first stone of an infant school was laid at Studley, on Thursday in week before last, by the sister of the founder, Mrs. Finley, wife of the vicar.—On Monday week the foundation-stone of "the Church of the Holy Jesus" was laid at Lydbrook, Forest of Dean, and coins deposited by Mrs. Davis of East-bank-court.—The foundation-stone of a new church to be built at Ogley Hay, near Walsall, was to be laid on Thursday week. Upwards of 1,000*l.* have been raised towards the building, site granted, a stone quarry thrown open to its erection by Mr. W. Stubbs, of Hammerwich, and various materials and teamwork promised by other contributors.—A monument in commemoration of the services and death of the officers and men of the 80th Regiment of Foot, or Staffordshire Volunteers, who fell in the Sutlej campaign, has been placed in the southern transept of Lichfield Cathedral. The work is by Mr. P. Hollins, and consists of a black marble tomb, of Egyptian architecture, surmounted by an Egyptian sphinx in white marble. In the same material, at the front of the tomb, and resting on its base, is a military trophy, and over this, at top of inscription-tablet, a basso-relievo of a soldier's funeral. The Egyptian architecture and sphinx are adopted in commemoration of honours won by this regiment in Egypt.—Christ Church, Pitsmoor, Sheffield, is nearly completed, and was consecrated, on Thursday in last week, by the Archbishop of York. It has seats for about 800, of which 560 are free. The style is Early Decorated English. The plan is cruciform, with western tower; roofs open, and plastered between the principal timbers. The entire length of the interior is 91 feet 6 inches, and the greatest breadth (in transepts) 68 feet 6 inches. Width across nave and aisles 51 feet; height of nave to ridge 40 feet. The entire cost of church and ground has been 2,650*l.* 1,850*l.* have been raised by subscription, 500*l.* given by the Incorporated Society of London and the Ecclesiastical Commissioners, leaving 300*l.* to be provided. The architects were Messrs. Flockton and Son, of Sheffield, and Mr. John Ridal was the contractor.

#### NOTES IN THE PROVINCES.

The Hull Workhouse has been condemned by the guardians, who recommend the construction of a new one for the united parishes of Holy Trinity and St. Mary.—Preparations are being made for the erection of a new dock at Seaham Harbour. The foundation stone is expected to be laid in the course of a week or two.—The new church at Drigg was consecrated on Tuesday in week before last by

the Bishop of Chester.—A large sculptured statue in front of Wells Cathedral fell to the ground on Wednesday in last week. The mass weighed several hundred weight.—Glastonbury Abbey came under the auctioneer's hammer on Wednesday week, but fell into the vendor's own hands at the nominal sum of 35,000 guineas; 33,000 had been bid. The abbey will now be sold simply with the residence and its own demesne enclosed within the old abbey walls.—The Trevethin Water-works Company are about to make and complete their water-works, with reservoir, sluices, pipes, &c., on plans by Mr. T. G. Hardie, C.E., of Newport, in Wales.—A new court-room is to be formed at the Borough Court, Manchester, by Mr. Bellhouse, the contractor.—The price of Gas at Bury is to be reduced to 7*s.* 6*d.* per 1,000 feet in October.—The foundation stone of the new workhouse at Bradford was laid on Wednesday week.

Shares to the amount of nearly 10,000*l.* of the 16,000*l.* required have been subscribed for the new music-hall projected at Bradford. A public meeting has been held there also, for the purpose of forming a public park, as a testimonial to Sir Robert Peel. Mr. Alderman Salt has offered 1,000*l.* if the town will contribute 9,000*l.*—The foundation-stone of a new savings-bank was laid at Howden on Monday week.—The old Tuscan church of St. Bartholomew, at Whitworth, near Rochdale, is now to be sold, for removal within 8 months.—The extensive additional new buildings to the House of Correction for the North Riding of Yorkshire, at Northallerton, are nearly finished, having been more than a year in progress.

The old prison has been built up one story higher, being now three stories in height, the same as the new; by which upwards of 140 new cells have been obtained. There are extensive new apartments for cooking, washing, and other purposes, with workshops of different kinds, and two high towers have been built for ventilation. Some persons who have visited it, says a contemporary, "state that it is a fortress without, but a palace within, each cell being furnished with hard and soft water by pipes, and other conveniences for the comfort of the prisoners." A new chapel has also been built.—During a recent thunder-storm at York, the bell-turret of the new Roman Catholic Church, in George-street (Mr. Hanson, architect), was shattered, and, by a singular coincidence, Mr. Hanson's father was struck down by the lightning in the New-walk at York during the same storm, and rendered insensible. His eye was blackened and his body otherwise discoloured, but he afterwards recovered. Another bell turret was injured, namely, that of the Diocesan Training School, in Lord Mayor's-walk, and the lightning had there run along and melted a gaspipe, and set fire to the roof, which, however, was fortunately an open one, and the fire was speedily extinguished.—St. Matthew's Church, Grosport, was consecrated by the Archbishop of York on Thursday week. If our authority be right, this church was built in 1841. Messrs. Hirst and Moffat, of Doncaster, were the architects. The building is the Pointed style, and has been constructed to hold 216 persons. The ground, with land adjacent for a burial ground, and parsonage and school-house, was the gift of the Lord of the Manor of Egton.

A Sunderland correspondent of the *Gateshead Observer* says—"The directors of the Sunderland Subscription Gas Company, who only three years ago declared that it was impossible to supply gas with any profit at less than 7*s.* per 1,000 feet, having had this delusion corrected by their rivals, the Corporation company, now announce, in consequence of the success of the low-price experiment, a reduction to 3*s.* 6*d.* per 1,000; while the directors of the Corporation company, still more liberal, have reduced the price from 4*s.* to 3*s.* per 1,000 net. Sirloins as well as barons of beef will now be roasted by gas."—The Commissioners of the river Wear are about to improve the Sunderland dock entrance by removing a ledge of rock on a plan prepared by their engineer, Mr. Thomas Meik, at the pier and harbour works, Sunderland.—The Sunderland Dock Company are about to have made and erected the masting shear machinery for the design of which they lately awarded 10*l.* The company have been called on by dissatisfied parties to exhibit the

prize model to the shareholders, as "they have not fulfilled their contract." Meantime the plan and specification lie at the engineer's office at the dock offices, Sunderland.—The Town-Council of Berwick have resolved to memorialise Sir George Grey, Lord Ossulton, and the members of the borough, for their interference to prevent the Board of Ordnance disposing of the ramparts.—The Duke of Buccleuch has commenced another extensive enterprise at Granton, near Edinburgh, namely, a patent slip or railway incline for raising and repairing vessels. The design is said to be on the largest scale yet attempted, being available for vessels even of 1,200 tons burden.—Another of the Irish workhouses, that of Kanturk, has just been burnt to the ground.

#### ELECTRO-TELEGRAPHIC PROGRESS.

A TELEGRAPHIC wire having been sunk in the sea and "Canal Grande" at Venice, successful experiments have been made between the railway terminus and the residence of the governor.—Mr. Livingston, a gentleman in New York, connected with the Electric Telegraph Company, has proposed to the managers of the Deaf and Dumb Asylum the experiment of employing the pupils in the work of the offices,—a duty for which their industry, perseverance, and powers of concentration are said admirably to fit them.—The *Journal de Calais* states that a number of English workmen have arrived at Calais to lay down the submarine line of international telegraph between England and France, and that they are at work at Cape Grimez.—The Electric Telegraph Company have resolved, it is said, to transmit messages between their principal metropolitan stations at a charge of 1*s.* for communications not exceeding 20 words.—The Queen's speech, delivered shortly after two o'clock on Thursday week, was distributed by telegraph from the Central Station, Lothbury, to Liverpool, Manchester, Leeds, Hull, Birmingham, Derby, York, Newcastle, Edinburgh, and Glasgow, by shortly after three o'clock. The speech, consisting of 502 words, was streamed off at the rate of 45 and 52 words a minute.—It has been found, as we anticipated, that gutta percha, though a good insulator, will not do as the sole or exterior covering for wires, particularly of submarine telegraphs. Water, especially salt water, converts it into a hydrated conductor. Impregnated with sulphur, it is said to resist this action of water; but for greater security, Mr. Siemens, of Berlin, recommends covering the gutta percha itself with a mixture of marine glue, coal tar, and resin. Mr. Siemens has constructed machinery for the purpose of coating wires with gutta percha. It consists of a cylinder, filled with heated gutta percha, and kept in that state by a warm-water bath. A piston working within the cylinder presses the semi-fluid gutta percha through nine holes in a conical piece at the bottom, through which the wires slowly pass through the air to the winding drums, which are at sufficient distances to allow the covering thoroughly to set before being wound up. The same gentleman, in a communication to the Academy of Sciences at Paris, recommends underground telegraphs in preference to those exposed to atmospheric vicissitudes.

#### Miscellaneous.

REPORT ON BRITISH RAILWAYS.—The Board of Commissioners on Railways have issued a report for 1849, from which, and from certain returns quoted in it, it appears that on 30th June of last year 1,504 miles of railway were in course of construction, and 5,132 miles of authorized line not commenced, since which time up to the end of year 576 miles have been opened. It also appears that all work has ceased on about 350 miles of lines returned as in progress in 1848, and which for the present may be considered as abandoned or postponed; that no great length of new line has been commenced since last year, and probably only about 1,000 miles out of 6,030 miles which still remained to be opened at the end of 1849 were in progress of construction at that time. The reduction in the number of persons employed in constructing railways, between May 1, 1848,



and June 30, 1849, was 84,361, against an increase of 3,280 upon lines opened; and in all 200,000 persons employed of late years on railways must now be seeking a livelihood in other ways. The total amount expended upon railways at the end of 1849 was about 220,000,000. At the end of 1849 the 5,996 miles in operation represented a capital of about 197,500,000. The gross receipts in 1849 amounted to 11,806,000; net available profit about 6,729,420, or 3.40 per cent. The passenger and goods traffic during 1849 amounted to 11,806,498, of which 6,277,892, was for passengers, and 5,528,606, for goods, cattle, parcels, mails, &c. The number of passengers was 63,841,539, of which 7,292,811 were first class, 23,521,650 second, 15,686,911 third, 17,203,411 parliamentary, and 136,755 mixed. The gross receipts for the first amounted to 1,927,768; second, 2,530,968; third, 711,592; parliamentary, 1,104,884; mixed, 2,678. The parliamentary continues to increase considerably; for, at one period, the third produced much more than the parliamentary. Finally, it is rather remarkable that what all the rampant royalty of railway kings, in the hey-day of railway prosperity, could not or would not do for the promotion of the public safety has been done by the chastening influence of a little adversity; for it appears from the return quoted in this report, that in 1849 "only five passengers were killed from causes beyond their own control, being a great reduction on the number thus returned in the preceding year. The number returned as injured by accidental causes beyond their own control has also been very much decreased, being one-third less than in 1848, so that, considering that the passengers who availed themselves of the railways in this country in the year 1849 amounted to an increase of 10 per cent. upon the preceding year, and of 16 per cent. upon the number conveyed in 1847, it is most satisfactory to perceive that there has not been a corresponding increase in the number of accidents."

**THE IRON TRADE.**—A notice has been issued to the men employed at the several ironworks in the Merthyr district, announcing that a reduction of wages, to the extent of 10 per cent., will shortly be made. In pig-iron more furnaces have been put out of blast in the South Staffordshire district. The quality of Staffordshire iron, too, appears to be deteriorating in the midst of other adverse circumstances. "By the admission of hot blast, with its accompaniment of cinders and other worthless materials, into our furnaces," says a Birmingham paper, "by the substitution of pigs brought from various distant parts for those made in our own district—by the introduction of squeezers, puddling from the blast, and many other questionable inventions, the quality of our manufactured iron is so affected that Staffordshire iron will soon be not Staffordshire, and will cease to be trusted for those important purposes for which it is naturally pre-eminently adapted; hence, it will cease to command a market, independently of reference to prices in other districts. \* \* \*

In becoming dependent upon export trade, we have to compete with the produce of all other districts and countries, in a field where the chief condition of success becomes cheapness of price. Without, then, an assimilation of expenses to those paid by our competitors, it is evident the struggle will be of short duration; and, however unpalatable such a step may be to the operatives, however unwilling the masters may be to curtail the enjoyment of their workmen, or whatever difficulties may be encountered in carrying it into effect, there will shortly be no alternative but a reduction of wages." A gloomy enough prospect, truly, for both men and masters. But, in the main, the exhaustion of the iron trade is but the natural collapse of a temporary system, fostered for a special purpose—that of railway formation; and, although some of its forced branches must wither, the root will remain as before, and the trade will again flourish, when reduced once more to its legitimate and permanent dimensions.

**EMERY PAPER.**—The Fishery Board has issued a circular, recommending fishermen to catch as many dog-fish as possible, skin them, and dry their skins for sale, to be used in lieu of emery paper, for which we happen to know that they are by no means a bad substitute.

**SPANISH ARCHITECTURE.**—In your criticism of our work, "Examples of Architectural Art," by the favourable notice of which we feel much gratified, and beg to return thanks for it, you say that we treat Spanish architecture unjustly, doubtless founding your belief on Mr. Ford's eulogies of it; but Mr. Ford, with whom I have had two or three interviews, is evidently a *Herrera-en devotee*, and being but an admirer of architecture, cannot speak authoritatively on the subject. I think it more important to mention this, because many young architects might be induced to visit Spain, and really derive little architectural profit in comparison with the expense. That we have some truth on our side, as regards the Renaissance to which our remarks allude, is shown by the subjects we have given, being the most choice we could find. As to the Escorial, so highly praised, size is its greatest merit, and one only leaves it with regret that so much masonry should be piled up on such a scale of grand baldness. The Gothic and Moorish of Spain are quite another affair.—J. B. WAKING.

**THE METROPOLITAN SANITARY ASSOCIATION** have resolved that, during the Parliamentary recess, the association will apply itself in organising an effective movement to obtain, in the next session of Parliament, an Act for the improvement of the present dwellings of the poor, for the repeal of the window tax, an Act to provide an improved supply of pure water to the metropolis, and an amendment of the Nuisances Removal and Contagious Diseases Act. The association appeals to the public for support and aid in the necessary efforts to obtain these objects.

**THE EXHIBITION OF THE ROYAL HIBERNIAN ACADEMY** has been open since June. Although the pictures are not so numerous as in former years, yet the selection is superior. A large number of valuable specimens have been contributed by English artists. In the ante-room are the works of architecture and sculpture. The collection is small this year. Amongst them are, "Design for an Early English Church," by Alfred Jones; "Perspective View of Great Southern and Western Railway Terminus, Dublin," by Sancton Wood; "Front Elevation of National Gallery," by John J. Lyons; "Plan of principal Story of ditto," "Entrance Front of Dundalk Chapel," &c., by same; "Design for new Roman Catholic Chapel at Clonmore, county Louth," by John Bourke; "Model of Mausoleum," by H. McDonnell, &c.

**BEVERLY MINSTER.**—The large window of St. Mary's Church, which has for some time been undergoing repairs, has lately been opened; the whole of the stone work having been renewed under the superintendence of Mr. Pugin, and stained glass added by Mr. Hardman. The stone work comprises two tiers of seven compartments each: in the centre of the lower one is a figure of the Virgin Mary, on the left hand of whom are placed St. Matthias with the axe, St. Thomas with the spear, St. James the less with club; and on the right St. John with cup, St. Matthew with builder's rule, and St. Simon with the saw. In the centre of upper tier there is a representation of our Saviour, on the left of whom are put St. Bartholomew with the knife, St. James the great, pilgrim's staff, and St. Peter the Gospel and the keys; and on the right St. Paul with the sword, St. Andrew with the transverse cross, and St. Philip with staff and Latin cross. The window above the transept is divided by the intersecting mullions into eight compartments, four above four, on each side of the centre in which are placed the prophets Amos, Zechariah, Jonas, Micah, Zephania, Haggai, Obadiah, Malachi, Isaiah, Joel, Habbakuk, Jeremiah, Ezekiel, Nahum, Hosea, and Daniel.

**A SAILING CHURCH.**—The Thames Church Mission Society have a cruising church for sailors. The collier crews could not go to church, and accordingly the church has gone to the colliers. The Thames chaplain is the Rev. W. Holderness. The rev. gentleman has a roving commission, and never before had rover so peaceable a commission.

**NATIONAL GALLERY FOR SCOTLAND.**—£10,000 have been voted towards the expense of erecting in the city of Edinburgh buildings for a national gallery, and other purposes con-

nected therewith, and the promotion of fine arts in Scotland.

**BIRMINGHAM ASSESSMENT.**—The parish of Birmingham is about to be surveyed under the Poor Law Assessment Act, and the local *Journal* is very properly calling attention to the necessity of appointing the most fit and proper person to make the assessment that can be obtained. The writer says:—"Auctioneers, land-measureurs, highway contractors, frequently call themselves surveyors, but the man who is to assess Birmingham should be a competent surveyor and architect too, in every sense of the term. Nor is this all—he ought to have a thorough knowledge of surveying jurisprudence. He ought to be able to show, not only why he has assessed a particular property at a particular amount, but that he has done so in accordance with acts of Parliament and legal decisions. The Birmingham surveyor must not be permitted to leave behind him a large legacy of legal experiments, and one of the inquiries made of the candidates will most naturally be, whether their assessments have been followed by numerous appeals, or the reverse?" 38,000 assessments are involved.

#### TENDERS

For the survey and valuation of the parish of Birmingham, with map of same three chains to the inch (time and cost), forty-two tenders lodged, namely:—

	Survey, &c.	Months.	Map.	Months.
Humbart and Bedford, London .....	1,850	15	1,600	3
J. Barrett, London .....	1,750	15	750	3
C. W. Robertson, Doncaster .....	945	18	1,300	24
Austin and Shout, Bristol, &c. ....	1,400	15	550	6
G. Taylor, Brecon .....	2,375	21	2,935	12
F. Empson, Birmingham .....	2,000	24	200	4
G. Dyke, London .....	850	12	650	6
Denzil and Pichon, Saintambridge .....	3,700	12	.....	.....
Newman and Son, Leeds .....	2,500	18	.....	.....
C. Mappleton, London .....	1,850	24	150	6
G. Sanderson, Reading .....	1,140	18	60	14
Leverage and Corfield, Taunton .....	700	12	200	4
R. Dickson, Godalming .....	1,500	18	1,500	18
H. Wrigg, Salford .....	400	12	375	1
J. W. Cole, London .....	1,304	12	145	0
Young and Dobson, London .....	2,650	12	350	6
P. Gannon, London .....	1,450	12	100	6
G. Thompson, Jux, Kingsvalley .....	500	12	300	6
Nelson, Colliard and Jux, London .....	3,875	12	1,837	6
Hutchinson, O'Hagan, and Bell, Preston .....	2,000	12	1,100	12
E. Ryde, London .....	4,500	24	1,000	12
J. Webb, Worcester .....	1,750	24	800	24
R. Cantwell, London .....	10,550	48	.....	.....
Hebbert and Paevel, Northallerton .....	1,020	6	340	4
J. D. Kaine, London .....	915	10	1,575	3
G. Haselhurst, Chesterfield .....	4,750	51	.....	.....
J. Bowron, London .....	1,900	8	150	2
W. Abbott, St. Neots .....	3,000	24	1,600	12
T. Buckton, Milton .....	3,075	36	.....	.....
F. King, Oxford .....	3,475	18	250	6
T. Naden, Birmingham .....	2,500	36	700	12
G. Taylor, Brecon .....	3,555	24	.....	.....
C. Heurnan, London .....	1,750	18	270	4
I. Newey, Birmingham .....	1,445	21	740	6
P. Sandon, Sutton Coldfield .....	2,100	12	1,050	6
R. A. Sharpe, Birmingham .....	2,400	30	1,000	6
E. S. Gibborne, Nottingham .....	1,987	30	1,875	6
J. W. Hornblower, Birmingham .....	1,900	30	200	8
J. Booth, Keighley .....	1,540	24	50	6
Fowler and Noun, Birmingham .....	1,733	20	.....	.....
R. Homfray, Hales Owen .....	1,800	24	1,300	6
J. Ludlow, Birmingham .....	450	24	.....	.....

It was resolved by the guardians that the tenders and testimonials be referred to a committee of the whole board, to examine the same, and where necessary, to obtain the attendance of the parties, and to select six of the most eligible tenders for subsequent approval. A short conversation occurred, on moving the resolution, in which it was stated, according to the local *Journal*, that if any of the persons tendering were required to attend the board, their expenses would be paid.

For finishing carcasses of two villas, Fir Grove, Weybridge, for Sir John Easthope, Bart. Mr. Ambrose Foytner, architect:—

Higgs, London .....	£1,600
Oades and Son, Egham .....	1,680
For a new House and Offices for Mr. C. W. Wixar, Finchley. Mr. E. Woodthorpe, Architect.	
Outwells .....	£2,385
Myers .....	2,311
Ploverman .....	2,298
Locke and Nesham .....	2,065
Wason .....	2,049
Trego .....	1,986

For a School of Refuge, Dalston. Mr. W. Tress, Architect.

Carter .....	£2,177
Trego .....	2,164
Haynes and Co. ....	2,113

St. George's Hospital. Mr. A. Mee, architect.

Piper .....	£2,647
Grimsdell .....	2,593
Mansfield .....	2,555
Hubbitt and Co. ....	2,490
Trego .....	2,408
Holland .....	2,333
Jackson .....	2,343
Locke and Nesham .....	2,298

\* Survey and map only.



## TO CORRESPONDENTS.

"Plans."—"A. J. B." says, tobacco leaves put into beds will keep them out.

Revised—"R. N. I." "M. P. G." "Baron," "F. F. R. T.," "E. S.," "J. G. H.," "H. G.," "Fair Play," "J. T.," "G. W.," "G. W. Jun.," "J. E.," "I. E.," "J. B.," "Quondam," "A. A.," "Common Sense," "J. B.," "The Entry into Jerusalem," (Art-Union of London), "Shakespeare's Seven Ages," by D. Maclellan, R.A. (Art-Union of London), "Report of Art-Union of London for 1887" (Art-Union of London), "The School Builders' Guide and School Furniture Pattern-book," by Rev. C. Richardson, M.A. (Dartford and Co., Holborn-hill); "Improvement and Drainage of Metropolis: New Street with Aqueduct Sewer," &c., by N. Beardmore, C.E. (Weale, High Holborn); "Plan and Elevation of proposed detached Residence for each Interpreter at International Exhibition," by J. Galpin (Chalott, Skinner-street, Snow-hill); "On the Strength of Materials, specially applied to Tubular Bridges, Iron Beams, &c.," by F. Tate (Longman Brown, Green, and Co., Paternoster-row); "The Britannia and Conway Tubular Bridges, and on Beams and Materials," by E. Clark, with sanction and supervision of R. Stephenson; and folio volume of plates (Day and Son, Gate-street, Lincoln's Inn-fields; and Weale, High Holborn).

Some of our correspondents must excuse us till next week.

"Books and Addresses."—"We have not time to point out books or find addresses."

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# The Builder.

No. CCCXCV.

SATURDAY, AUGUST 31, 1850.

**I**N accordance with the promise last week, in our notice of the meeting of the Archæological Association at Manchester,\* we give an elevation and plan of a large warehouse now being erected near the infirmary in that city, under the direction of Mr. J. E. Gregan; not simply for itself, but as an example of the class of buildings with which the streets of that extraordinary city are being lined.† This warehouse is to be occupied by a firm extensively engaged in the American trade, and the interior arrangements are made with a view to suit their particular branch of Manchester business. For example, one of the upper stories contains a series of counting-houses, for the private use of the American merchants when in Manchester to make their purchases. The building is not fireproof, the floors being constructed with timber beams 14 in. by 10 in., laid from 7 to 8 feet apart, on which lie 3-inch planks, grooved, and tongued with strong hoop iron, forming the floor of the room over, and the ceiling of the room under. The beams are supported by iron columns over and resting upon each other. There is a cartway through the building (from side to side), under the apartments marked "Waiting office," and "Sale and sample rooms." The well, covered with glass roof, over part of this cartway, is for loading and unloading from the several stories.

There are hydraulic packing presses, worked by a steam-engine in the cellar, which also supplies power for working a fireproof hoist, and the tackles for loading and unloading the waggons in the cartway. The exterior is cased with Yorkshire stone: the walling tooled, and the dressings polished: the windows will be filled with plate glass.

The large quantity of light required in a warehouse of this description, demands a great number of windows, and they are necessarily very close to each other, as the distance from centre to centre of the piers is regulated by the position of the floor-beams. This arrangement destroys much of the breadth of effect desirable in a building of such large dimensions; and an attempt has been made in the structure before us to recover this quality, as much as possible, by only dressing the alternate windows. The effect of the building in execution is superior to that of the engraving. The whole cost will be about 8,000*l*.

No one should go to Manchester without seeing the process of cotton-printing, albeit in parts a sloppy operation, at which fine folks turn up their noses. At Hoyle's "Mayfield Print Works" there is a school for children, dwellings for the workpeople, and extensive buildings for the various steps in the process. (In the first apartment you see girls (with strong magnifying glass), engraving the patterns on copper rollers; then the presses furnished with these rollers, at work, moved by two steam-engines of 25 horse-power each, which also do all the other work of the establish-

ment; further on you have drying-rooms, fitted up with cases filled with steam, over which the printed calico passes, and where the temperature is higher than is agreeable in August; and then you come to an enormous apartment, perhaps 120 feet long, 45 feet wide and 75 feet high, called the ageing place, where the printed stuff is exposed, hanging from the top in its whole length, to the oxygen of the atmosphere. Each piece, we should say, is dyed after the printing. It is afterwards washed in one steam-turned cylinder, and then put into another which makes 800 revolutions in a minute and so whirls it dry in something less than no time.\* There are other processes, such as de-oxygenating the blue cloth to make a green, and numberless contrivances to lessen labour, such as an inclined plane from the upper stories to the ground-floor (a sort of "Russian mountain") down which the little urchins of boys come rattling at dinner time with the rapidity of "greased lightning;" but we may not stop to describe them. An enormous volume of patterns lying in the designer's room, the produce of one French house for one season, would form a text, too, for an instructive commentary, but we must abstain. One important result of the approaching international exhibition, will be, that we shall see where we are inferior to other nations, and learn what we have to strive for.

Houldsworth's Embroidery Establishment is another feature of Manchester. About 250 persons are employed there, mostly young girls and children, and very exquisite works are produced. It is to be hoped that means are afforded to these poor children to obtain instruction, although, as they work from six to six, there would seem to be little opportunity excepting at the Sunday school.

Before returning to the business of the meeting we looked in at the "Exhibition of the Works of Modern Artists" in the Royal Manchester Institution, which comprises 571 works. It includes naturally many works previously exhibited in London, amongst others by O'Neil, T. F. Marshall, Wingfield, Creswick, M'Innes, Boddington, J. E. Lauder, Anthony, R. Ansell, &c. The Heywood medal has been awarded to a picture by a name unknown to us—Thomas Faeel, called "Jeannie Deans and the Duke of Argyll." It is a promising work, but the female figure is not Scott's Jeannie. In the water colour department, the medal has been given to F. M. Richardson, for No. 463, "Falls of the Tummell, Perthshire." There is an admirable "Portrait of a Lady," No. 111, by Hermann Kretzschmer; and two sisters, Miss Mutrie and Miss A. Mutrie, exhibit representations of fruit and flowers which deserve high commendation: No. 117, pine apple, grapes, &c. by the latter, is especially excellent.

The excursion made by the association to Lancaster was most successful: the kindness of many of the inhabitants and the beauty of the places visited will not soon be forgotten by those who had the good fortune to go there.† Whalley Abbey, which was visited, on the road to Lancaster, has many features of interest. The Rev. Mr. Whittaker, son of the writer of the excellent "History of Whalley," acted as guide. The remains here are of the fourteenth and fifteenth centuries: the abbey gateway is of great size, and, together with the north-east gateway, of striking proportions. The prin-

\* 5 lbs. of water are taken out of a piece of stuff by this machine in eight minutes.

† In addition to the papers read at Lancaster, which we mentioned last week, may be named one by Dr. James Johnson, on the "History of Ancient Lancaster," and another on the "Antiquities of Furness," by Mr. Haggard.

cial ornamental feature remaining is the entrance to the chapter-house, a work of the Perpendicular period.

Whalley Church, close by, has a very interesting Early English chancel, with an effective memorial window at the east end by Messrs. Pugin and Hardman. A chapel here, enclosed with screenwork, carved by Etough, carver to Whalley Abbey, in 1510, was known as St. Mary's and St. Nicholas's Kage, one of the few instances of the application of this word to chantry chapels. A pew here, belonging to the Towneley family, was anciently called "St. Anton's Kage." In the churchyard are the remains of three curious crosses, probably antecedent to the Conquest. Pasley, the last Abbot of Whalley, executed in the time of Henry VIII., lies in the church. In expectation of the visit of the association, Mr. R. Moffatt Smith published a series of views of the antiquities at Whalley and Ribchester, which the members will find a pleasant reminder of the visit.\*

Ribchester Church, also, has an Early English chancel, with triplet window at east end. The south porch has a room in the upper part, and stands higher than the aisle to which it is attached. Ribchester was an important Roman station, and will yield up evidence of this, at any time, on the application of a spade, with knowledge. Excavations had been made under the direction of the president of the Association, and the results, in the shape of Samian ware, glass, bones, coins, &c., were considerable. On the return to Manchester, Mr. Just and Mr. Harland, of the *Manchester Guardian*, read a very valuable joint paper on the Roman remains, roads, &c., in Ribchester.†

At Stidd, near Ribchester, is a small chapel of Norman structure (there is little architecture of this period remaining in the county); and here too, is an old house occupied by four families, which seemed to us worth illustrating.‡ Each occupant has a separate entrance, and architectural character is given to the building by an external central flight of steps to the upper floor, with large arcaded porch.

The journey to Furness Abbey, to which a whole day (Wednesday, the 21st) was devoted, was a long one, and required two railways, omnibuses, and a steamboat, each way. But fine views, fresh air, a large party, including

\* Six Views of Architectural Antiquities in Whalley and Ribchester. By R. Moffatt Smith, Architect, 13, Dickinson-street, Manchester.

† The following is a portion of it:—It is clear that Coccium was an important place under Roman sway, possessing privileges and governed by laws unknown to the other stations on the same line of military road. It is hence to be presumed that it should exhibit a greater extent of area, and richer and more numerous remains than any other station in Antonine's 10th Itinerary. According to the admeasurement of the ordnance survey, the rectangle marked out by the agger, where stood the ramparts of the station, included about ten statute acres. This area is larger than that of Mancunium to the south, or than those of Bro-metacum, Galacum, &c. to the north. As to remains,—pillars and shafts of columns belonging to a Roman temple, baths, a helmet, altars, and other inscribed stones, coins, pottery, &c.,—show that in comparison with such remains on the other stations of the line, Ribchester stands as pre-eminent as its ancient importance might lead us to expect. Legend, however, about the middle of the 18th century, found it "but a poor thing." Camden describes it as a rich mine of antiquities, and copies with more or less accuracy five inscriptions. Succeeding antiquaries, including Dr. Leigh, Dr. Stukeley, Hone, Gale, Dr. Warton, the historian of Whalley, add their discoveries, especially the great discovery of the bronze helmet and other antiquities, in 1796; the inscribed altars is at the Temple of Minerva, in 1811 and 1813; and the subsequent discoveries of stones, pottery, coins, &c. all combining to accumulate a treasure of interesting antiquities, which, it is lamentable to add, for want of some local or county museum, like those at Newcastle-on-Tyne and York, have been either lost or scattered, till little now remains of these extraordinary proofs of the Roman power in this part of the kingdom. One solitary inscribed altar is at the vicarage at Ribchester, with a few coins, a fibula, a dial, and some fragments of Samian ware, and of coarser pottery; two altars are within the precincts of St. John's College, Cambridge; one is at the cathedral college of St. Albans, in this county; some remains are at St. Dunstons, Esg., the Holme, near Burnley; and for the rest, they are scattered in various parts of the kingdom, including Preston, Rochdale, Chester, Tabby Hill, Yorkshire, &c. The British Museum contains those formerly in the Towneley Museum.

‡ See page 416.

\* See p. 397, ante.

† See p. 414.



some of the big-eyed Lancashire witches, and one of the finest ruins in England, amply justified it. The site of Furness Abbey is one of those delicious valleys which the Cistercians always selected for their buildings: the ruins are very extensive, and belong mainly to the latter part of the twelfth century, when the pointed arch was being incorporated with the semi-circular. They occupy a space of ground 600 feet in length by about 400 feet in width, and the grounds enclosed to the monastery altogether were 65 acres. Standing in the centre of the quadrangle, a regular square, with sides of some 180 or 190 feet each in length, you have on the north side the conventual church, a building of extraordinary proportions, with its tower, chancel, transepts, and choir 306 feet in length, the width of the church across the transepts being 190 feet. On the east side of the quadrangle was the refectory, about 200 feet long; the chapter-house and common refectory, with dormitories above (upwards of 200 feet in length); and on the west a magnificent hall, stretching from the chancel of the church to the utmost limits of the southern building (being, in fact, nearly 300 feet in length), which may have served as the hospitium or guests' hall. There was also a long suite of buildings farther south of all these, at right angles, and covering them from east to west, the exact purpose of which has not been determined, though one was apparently a small chapel (the abbot's chapel), and another the hospital.

There are some very interesting early stone effigies scattered about, on which Mr. Planché discoursed pleasantly.

The society here had the advantage of Mr. E. Sharpe's guidance, as well as of an excellent paper from him on the subject, a condensation of which we shall print hereafter.

The Chapter-house is a singularly fine Early English apartment: one of the windows, left unfinished, shows the several steps in working the dog-tooth moulding. The sedilia in the chancel of church, a Perpendicular insertion, are remarkably large and fine.

We must back, however, to Lancaster, where, on Thursday morning, the members were publicly entertained by the inhabitants. A hundred people breakfasted and nine speeches were made in five-and-forty minutes; and then they rushed out to see a bit of the town before starting for Hornby Castle. The castle at Lancaster, as every one knows, is now a prison, and shows little of the old work but the keep. The law courts in it were designed by Gandy. Lancaster church, a building of the Perpendicular period, possesses some extraordinary wood-work of the previous style, in the shape of reredos and stalls, now against the east wall. The history of this wood-work, of which there was formerly much more, is unknown: tradition says it came from abroad. The reredos is especially beautiful. The east window is filled with stained glass: the subject is the Crucifixion, one of the best of Wailes's works. The church is lumbered up with galleries, but it may be hoped that these will not long be suffered to remain. A new font, well designed by Messrs. Sharpe and Paley, was put up in 1848, in connection with a small brass tablet, as a memorial of John Stout, Esq. of Lancaster, in lieu of an ordinary monument. It is octagon in form; stands on two steps, and has figures of the Evangelists in the pedestal.

Hornby Castle, illustrated in our last number, has been recently restored by Messrs.

Sharpe and Paley, in good taste. It cost the present possessor, Mr. Pudsey Dawson, twenty years' fighting in law courts, and many thousands of pounds, before he could obtain possession of it, under a disputed will. After a most hospitable and elegant entertainment here, the migratory body (literally swallows a little while before) once more started for Manchester, where papers were read on "Ancient Etymologies," by Rev. Dr. Whittaker, of Blackburn; on "The Discoveries at Lyme in Kent," by Mr. Thomas Wright; on "The Traces of the Romans along the banks of the Mersey," by Mr. W. Beaumont; Mr. Jas. Thompson on the Roman wall at Leicester; on "Geolophies," by Dr. Bell, &c. (to some of which we shall refer); a public dinner was eaten; a thanksgiving and wind-up meeting held on the Saturday, and then the members evanished to their several homes, having spent a pleasant, instructive, and useful week.

We must not omit to add that at the closing meeting on Saturday it was resolved, "that, with a view to the advancement of archaeological science and the formation of a central museum of British antiquities, it is desirable to promote a union between the British Archaeological Association and the Archaeological Institute of Great Britain and Ireland; and that this meeting strongly recommends the council to take such steps as to them may seem expedient to accomplish these important objects." We sincerely hope that the Institute will evince a corresponding good feeling, and that the endeavour will prove successful.

#### THE STRUCTURE OF THE NORMAN FORTRESS IN ENGLAND.\*

THE Norman castle did not consist of a single building, such as in modern times we often understand by the term, but of a *series* of fortified erections. The keep, which we now frequently designate the castle, was but a part of the stronghold, and was the resort of the garrison only in times of pressing danger. The castle consisted of the central building, or keep, the upper and lower courts, or baileys, in which were the garrison buildings, with the walls, gates, barbicans, and ditches, intended to promote the general safety. The area occupied by a castle was often very considerable. Norwich Castle covered a space of not less than twenty-three acres. The site chosen for it was usually an elevated spot of ground naturally defended on two or more sides. Excepting in situations where the ground was very precipitous, a ditch was drawn around the enclosure. When the nature of the level would admit of it, the moat was filled with water. On the inside of the ditch a strong wall was raised. This was sometimes thirty feet high, and had a thickness of six or eight feet. On the top of it was a platform, protected by a buttress, for the evolutions of the garrison who manned the fort. The curtain wall of the Norman fortress of Richmond is in a nearly perfect state. Its masonry is of a rougher character than the keep, a large portion of the facing stones being undressed. The erection of it has evidently been the first care of the garrison, as the buildings, which have been placed against its inner margin, have not been tied into it. One or more gateways of course gave access through the wall to the interior space, each of which was defended by a tower and other appliances. The drawbridge and the portcullis belong rather to the Edwardian than the Norman castle, yet examples of them are met with at this period. When the foe attacked the fort the ditch had to be filled up with hurdles or earth before the gate could be reached, and when it was the upliftd drawbridge formed an additional barrier. In addition to the tower defending a principal gateway, a barbican or advanced work was occasionally added. This was sometimes furnished with a ditch and drawbridge. Besides the principal entrance into the castle, other apertures, which convenience dictated, were provided. These were often very narrow, and were placed in situations so precipitous as to be easily defended. Not unfrequently two or even three walls, each of them provided with a moat, surrounded the fortress. Where concentric walls did not form independent inclosures, a wall was drawn across the general space, dividing it into

\* Read at Manchester, by the Rev. J. C. Bruce, of Newcastle-upon-Tyne.

two courts, called the inner and outer bailey. This enabled the garrison, in case of the outer court being taken, to retreat into the inner. Immediately within the outer walls of the castle, the garrison buildings seem to have been placed. These consisted of the residences of the several officers, a common hall, a place of abode for the soldiery, stables for the horses, and a chapel for the use of the garrison. At Richmond most of these yet remain. The general character of them is dark, gloomy, and comfortable, bearing more of the appearance of dungeons than of the abode of conquerors. They now come to the most remarkable part of the fortress—the keep. This was the retreat of the garrison in the event of the outer and inner baileys being carried by the enemy, and on it, accordingly, the utmost skill of the military architect was lavished. It was generally placed in the centre of the fortification, though this was not universally the case. When circumstances allowed of it, it was placed upon a site more elevated than the rest of the fortress. If the ground did not naturally assume the required form, a forced mound was prepared of the materials taken out of the moats. Clifford's Tower at York is so placed. The general form of the Norman keep is that of a quadrilateral figure nearly approaching to a square. The great thickness of its walls, and the strength of its masonry, almost superseded the use of buttresses. In buildings of the larger class a smaller tower is attached to the main structure in order to defend the entrance. The cautious policy of the Normans suggested that the door-way of the keep should not be on the ground-floor, but at a considerable elevation. It is generally placed upon the second story. By this means the lower parts of the building, which were more exposed to the battering-rams of the besieging party than the higher, were kept in unimpaired strength, and the attacking party, before reaching the entrance, had to climb a steep staircase, exposed meanwhile, to the fire of the garrison. In small buildings the entrance stair is left uncovered, but in large fortresses it is uniformly protected by a tower attached to the keep, but still entirely independent of it. The whole of this subsidiary building might be in the hand of the enemy, while the integrity of the citadel remained unimpaired. The masonry of the keep was of the most formidable character imaginable. At Newcastle there is reason to believe that the whole area of the site has been built solid from a depth of about fourteen feet to the surface of the ground. The thickness of the walls is in most cases enormous. Twelve and fourteen feet is a common thickness; but there are cases, as at Colchester, where they are thirty feet thick at the bottom. They generally taper off in stages, so as to give to the upper apartments increasing size. The stones employed in building these walls are uniformly of excellent quality, and were not unfrequently brought from a considerable distance. They were not usually of a size larger than could be conveniently lifted by a man, and were for the most part square in the face. The face of the wall only consisted of regularly squared stones: the interior was composed of groit. The strength of the whole structure chiefly depended upon the character of the mortar employed. In making it the Roman method was adopted. It was poured in a sort of semi-fluid state into its bed, loose rubble being thrust in amongst it: in the course of a few hours the mortar would become solid, and in a few days the wall would present to an enemy a breastwork capable of resisting a battering-ram. Nothing could exceed the firmness of Norman masonry; it is, possibly, harder than unburnt rock. Recently it was necessary to breach the walls of the White Tower, in London, in order to introduce a straight way into it for the conveyance of ordnance stores; and it took a party of sappers and miners six weeks to effect their purpose. The same policy which suggested that, excepting on very rare occasions, no door should exist on the ground-floor, required the very sparing introduction of windows. In some instances, as at Richmond, there are none on the ground-floor. The room has depended entirely upon artificial light: the staples fixed in the centre of the vaulting show the places where the lamps have hung. Where windows are introduced, they are of the smallest possible size, being little better than arrow loops. The light which was admitted through the aperture was carefully economised by the increasing width of the window as it approached the inner margin of the wall, and by this means the precious rays were allowed freely to expand themselves. As these holes served the purpose of arrow loops as well as windows, the bottoms of them were generally formed into steps, and on their upper margin was not unfrequently a recess provided to protect the head of the soldier, who stood at watching his opportunity to project the deadly bolt. In order to defend the garrison within the keep from the action of missiles thrown through the apertures, an ingenious contrivance may often be noticed; the upper portion of the window aperture is made to curve downwards as it approaches the inner margin of the wall, or a stone curtain drops directly down, and against these projections an arrow sent from below would necessarily strike and



drop harmlessly down. The grand entrance, which is usually placed on the south side, is the member of the fortification on which the builder has chiefly displayed his artistic skill. Some of them are very beautiful. A very curious exhibit the semicircular arch of the Norman style and the characteristic zig-zag ornament. The windows of the building, when windows are admitted as they usually are on the second and third stories—especially on the side least exposed to the enemy—are generally comparatively small and nearly devoid of ornament. The internal arrangements of the keep may now obtain our attention. In the large buildings the interior area is divided into two or three compartments by stone walls rising from the ground to the summit of the building. The object of this arrangement has been, not so much its economical convenience as its military advantages. In the event of one compartment of the castle being got possession of by an enemy, the other might be successfully held out against them by closing the gates of communication. From the top to the bottom of the building a newel staircase usually ran. In the lower part of the building this was the only means of communication with the several stories, for the builders have evidently contemplated the possibility of an enemy getting possession of the ground-floor, and yet being kept at bay. In the upper part of the building, where the same reason could not exist, greater freedom of communication is enjoyed, and two or more staircases exist. The structure of the newel staircase is curious; it is turned round a central pillar, and is vaulted above. The erection of this spiral vaulting must have been a work of some difficulty. Another essential requisite in a Norman keep was the well. Without it no garrison could maintain a siege. In many cases the labour involved in sinking it was very great. At Carisbrook Castle, in the Isle of Wight, the well is said to have been 300 feet deep. At Ramborough Castle the well is sunk to the depth of 145 feet, through a whinstone rock. It was not sufficient, however, that a well was provided, to which access might be had in the basement story—the comfort of the garrison required that it should be easily accessible from the higher parts of the building. At Rochester the pipe of the well is continued from the ground to the highest floor of the building: an arched opening communicates with each story. At Newcastle a contrivance is adopted which is probably peculiar to this keep. The well is only accessible from the third story, the pipe enclosing it being continued up to this elevation where there being any intermediate openings in its solid masonry. The builders have evidently contemplated the possibility of the lower portions of the building being in the possession of the assailants without the garrison being obliged to surrender. This precaution, however, not only involved the labour of raising every bucket of water that was wanted for any part of the castle to this elevation, but the additional labour of carrying to the apartments below what was required there. To remedy, in part, this inconvenience, pipes have been laid in the walls and pillars of the building from the well-room to the lower parts of the structure. Some portions of them yet remain. In castles of a moderate size, the principal room of the lower story is vaulted, a central column supporting the radiating ribs of this arrangement. In time of a siege, this apartment was probably the residence of the common troops of the garrison. Pent up here day and night in considerable numbers, their situation would not be of an enviable kind. As being a little removed from the immediate source of danger, more light is usually admitted into the second story than the first. This, however, is done with some care. At Rochester nothing larger than an arrow loop is allowed in the second story. In addition to the principal apartments in the interior area of the keep, we have smaller ones situated within the thickness of the walls. The massive nature of the building admits of the formation of tolerably convenient apartments in these situations. They are uniformly vaulted in the roof. In order to prevent the strength of the wall being materially damaged by this arrangement, care is taken not to have these rooms similarly placed in consecutive stories. If the mural chamber be in the south wall on the second story, it is probably in the north wall in the third. These chambers have probably been used as the retiring rooms of the chief occupants of the fortress. We occasionally meet with fire-places on the second story. These consist of little more than a hearth, from which a funnel-shaped channel, terminating in an opening resembling an arrow-loop, takes the smoke to the outside of the building. It is a curious circumstance, that in some keeps no traces of a fire-place are to be found in any part of them. This is the case at Richmond, and more remarkably still in the Tower of London. It would appear that in ancient days the luxury of a fire was less freely enjoyed than now. The hardy sea-king of Norway thought it effeminate to sleep beneath a roof, and the warriors of the middle ages considered a blazing hearth as unbefitting the profession of arms. The grand hall in most castles of importance occupies the third story. As at this elevation the

strength of the walls is of less importance than below, windows are more freely inserted. Near the upper part of the keep, and within the thickness of the walls, a passage ran entirely round it. This has probably been to enable the garrison in time of a siege freely to communicate with every part.

Mr. Bruce here described the mode of operation of a sallying party, taking Newcastle as his guide; and next discussed the question of whether underground dungeons were common in Norman keeps; and said,—I have at length come to the conclusion that underground dungeons were the invention of a subsequent period—the Edwardian—and, strange as the assertion may appear, that they were proofs of advancing civilization. In the fearful struggle between Saxon and Norman that followed the advent of William on our shores, human life was esteemed a thing of nought. No Norman was safe outside the walls of his keep, except he were accompanied by a strong guard; and when policy dictated, the Normans did not hesitate to exterminate every living thing, and to subvert every habitation in extensive districts. Dungeons were of little use to the Normans. If they caught a foe that was worthy of their attention, they gave him six feet of earth, or, if he were a tall man, seven. These castles are landmarks in the tide of time; they are memorials of the past, which call upon us to be grateful for present mercies. How miserable the condition of these Norman nobles. Look at the gloomy pile, and say is it not a prison—a prison into which we would now shudder to put a felon. Yet these prisoners, these above-ground pits, the Norman nobles built for themselves—they voluntarily incarcerated themselves, and unlike modern criminals, they used their best endeavours to keep their prison doors fast, and to resist the efforts of those without to throw them open. How piteous their lot when compared with the cottager of England at the present day—he is free to go where he likes, and when he likes, and should the hand of violence uplift his latch or affect his person, the might of Britain is put forth to protect him. Long may we enjoy our present comforts—let these enjoyments go on in an increasing ratio—but to understand and appreciate them let us preserve and study our Norman Castles.

#### THE FAILURE AT THE BRICKLAYERS' ARMS RAILWAY STATION.

THE doctrine of the coroner who held the inquest on the body of the poor man killed by the fall of the roof at the Bricklayers' Arms Station,—that the jury were not to inquire into the sufficiency or otherwise of the roof,—unsound, and should be reprobated.

For the safety of the public an investigation was demanded, and should have been made. No roof should be constructed so that the fracture of a single column should bring down the whole,—in this case more than 400 feet in length.\* The fact is, unless we greatly err, this roof was waiting to fall. The third span, which still stands (two are entirely gone), is in a very insecure state; the columns are pushed considerably out of upright, and require immediate attention, to prevent another accident.

What appears to be a new passenger-shed, of great extent, is being erected at this station, adjoining the site of the fall: Mr. Kelk is the contractor engaged upon it. We could not learn the name of the architect or engineer under whose superintendence it is being constructed, and we are rather glad of it, since we feel it to be our duty to call immediate attention to the insufficiency of the roof which is placed upon it. This is in two divisions, each having a span of more than 70 feet, and is carried in the centre on small hollow iron columns, 20 feet apart. It is a queen-post roof, the place of the posts being occupied by light iron rods: the rest is of timber. Telford's formula gives for a span of 70 feet, a tie-beam, 15 in. by 11½ in., and principal rafters 9 by 7, the trusses being 10 feet apart. Even those who have come to think Telford overcautious, will be astonished to learn that in this new roof at the Bricklayers' Arms station, the tie-beam is but 13½ in. by 6½ in., and the trusses 20 feet apart. We unhesitatingly assert that the roof is insufficient: if exposed to any accidental disturbing causes, failure must be expected, and, on the part of the public, we call for supervision. If we may judge from the secretary of the company, who wants a main requisite for his position, namely, good manners, this warning will be disregarded: in that case we must look to the government superintendent.

\* We have been complained of for having attributed the fall of the roof to the failure of one column; our statement, however, was fully confirmed at the inquest.

#### A FEW GROPINGS IN PRACTICAL ACOUSTICS.\*

As a branch of physical science, acoustics are understood in a general way; and various leading phenomena which will be here touched upon, most inquiring minds are familiar with; but we are not so well versed in their relation to our buildings as to our musical instruments, nor are we apt to look to the analogy which may subsist between the former and the latter,—in that, besides the propagation of sounds, the tempering agency of dampers demands attention. Such, however, we feel assured is the case, and is deserving of closer consideration.

Sound diverges alike in all directions, and in all weathers, seasons, temperatures, with the same velocity—unless impeded or accelerated by wind—and wherever it strikes, it is reflected at a like angle,—propagating itself by means of the obstacles with which it comes in contact: while the distance which it travels, therefore, depends on its original force, and subsequent reverberations, its rate is not at all influenced by these circumstances. The effect of the wind we may observe in the ringing of church bells in the distance, the sound of which, by turns, swells out, and sinks and dies away. The vibratory action of sound on the atmosphere is rendered visible by its affecting the notes in the sunbeam,—also disturbing cobwebs, and water in glasses: in concord, it will even shake small pieces of paper off a string.

The Air, to which we are indebted for hearing not merely rude noises and low murmurs, but musical sounds, and the delicate inflections of the human voice constituting speech, being the general medium of sound, its conducting power has from time to time engaged the attention of various philosophers, and the velocity assigned by them has been variously stated as follows:—

Feet per second of Time.

Cassini and the French Academi-	
cians.....	1,172
The Florentine Academy ....	1,148
And Halley, Flamsteed, and Derham .....	1,142

The latter deduction has been that usually adopted; but later experiments, having a more careful regard to the temperature of the atmosphere, have indicated 1,130 feet, at 32° of Fahrenheit, as approximating more closely the actual velocity. With this datum, and considering light (from its extreme celerity) as being instantaneous, we are enabled to infer the distance of visible objects producing sounds—having only to multiply the seconds which elapse by the feet per second.

Other fluids besides air are conductors of sound; and their relative power in this respect proves to be as their density: thus, amongst the results of experiments made by Biot, Berthollet, and Laplace, on the vapours of water, spirits of wine, and ether, the relative distances at which a sound could be heard in the atmosphere, and in vapour of ether, appear as 158½ and 143½ yards. It has been found, that the tone which a sonorous body will produce is sharper in hydrogen gas, and graver in carbonic acid gas, than in atmospheric air. Now, the specific quantities of these respectively we know to be—

Hydrogen gas .....	0.074
Atmospheric air .....	1.000
Carbonic-acid gas .....	1.520

And the inference becomes obvious, that there exists an important connection between acoustics and ventilation, pure air being favourable to the conduction of sound, and that which has become loaded with carbonic acid the reverse. In fact, we have observed the muffled tone of a preacher's voice in an afternoon's service, as compared with the same in the morning. In like manner, as refraction of the rays of light is produced in water by its encountering the denser body, so, it is allowed, a gaseous body, denser than the atmosphere, such as a cloud, will refract or even reflect sound; hence its tendency to retard it is obvious. Mr. Curtis, in his treatise on the ear, has express reference to the influence which the state of the atmosphere exercises on the organ of hearing, and states that it seldom happens that those who live in a humid or impure air possess acute

\* See various other papers on this subject in our previous volumes.



audition, deafness being much more frequent in such cases than where the air is pure and wholesome; and hence the greater prevalence of dullness of hearing amongst the poorer classes, from their residing in crowded lanes and close alleys. Here we have two effects produced from one cause, together detrimental to hearing.

The difference which we have mentioned, of the conducting power in these bodies, has had reference only to kind; but quality or condition has also its influence: thus, atmospheric air acquires with density an increase of conducting power, and has it also augmented by heat, although that produces the opposite condition. Bells are heard farther on plains than on hills, and still farther in valleys than on plains, because of the greater density of the air: if we hang a bell in an air-pump, and exhaust the receiver, and cause the clapper to strike against the bell, the sound will become fainter and fainter as the air is rarefied, and at length cease altogether when a perfect vacuum is produced. Captain Parry says that, during the intense cold experienced in Winter Harbour, he often heard distinctly people conversing, in a common tone of voice, at the distance of a mile; and instances his hearing a man singing to himself while walking along the beach at even a greater distance. Dr. Jameson says he heard, in calm weather, every word of a sermon at the distance of two miles! The air was no doubt considerably compressed in this case. Dr. Junot communicated to the Academy of Sciences the following interesting results of experiments made by him to ascertain the effect of attenuated and compressed air on the human body:—

When the pressure of the air was *diminished one-fourth*, the person placed in the receiver experienced a momentary distension of the membrane of the tympanum; inconvenience of respiration, the inspirations being short and frequent; pulse was full, compressible and frequent; superficial vessels turgid; eyelids and lips distended with superabundant fluid, hemorrhage and syncope being sometimes induced; the skin was inconveniently hot, its functions being increased in activity; the salivary and renal glands secreted their fluids less abundantly.

When the pressure was *increased one-half*, the membrane of the tympanum suffered inconvenient pressure, which ceased as gradually as the equilibrium was restored; but respiration was carried on with greater facility, the capacity of the lungs seeming to increase, and the inspirations being deeper and less frequent. The interior of the thorax acquired an agreeable warmth, and the whole economy seemed to receive additional strength and vitality. The increased density of the air seemed also to modify the circulation in a remarkable manner; the pulse was more frequent, full, and difficult of reduction; the superficial venous vessels were reduced, and were sometimes completely effaced, so that the blood, in its return towards the heart, appeared to follow the direction of the deeper veins; the blood would thus be determined in larger quantity to the arterial system, and especially to the brain, rendering the imagination active, and giving to the thoughts the accompaniment of a peculiar charm, such as to affect some persons with symptoms of intoxication: the power of the muscular system was increased, while the weight of the body appeared at the same time to be diminished.

We have met with a pleasant anecdote of a trick played off at the expense of a conclave of philosophers, who after dinner were plied so bountifully with fresh air, perfumed with orange and lavender, that their host had difficulty in supplying the extra demand for wine, so exhilarating and sharpening were the effects of the pure air, supplied, as it probably was, under pressure.

In these circumstances, we see additional evidence of the important relation which good ventilation bears to practical acoustics. It has been shown that the conducting power of air is increased with compression: with rarefaction, on the other hand, it is diminished; as was observed by Saussure upon the summit of Mont Blanc, where the firing of a pistol produced no greater report than a child's toy-gun makes in a room. This fact, and the effects previously related, suggest a comparison of the respective merits of those modes of ventilation

wherein the impure air is *drawn off*, and the pure thereby caused to follow as it were by suction and to make good the partial vacuum or rarefaction, with those wherein the pure is *forced in*, causing the impure to vacate by sheer pressure; and the result of the inquiry is necessarily in favour of the latter, seeing that compression of the air is at once favourable to its vivifying and its conducting powers.

Sounds are conveyed to a much greater distance during the night than during the day; which is considered to be mainly attributable to the air during the latter being traversed in all directions and disturbed by minute and singly undistinguishable sounds or pulsations—perhaps the last expiring vibrations of many sounds, together constituting that peculiar hum which distinguishes the "city closely pent" from peaceful rural scenes; and the absence of which gives to the night its death-like stillness.

The strong tendency of sound to ascend is proved at Table Mountain, at the ridge of which, 3,600 feet high, and rising perpendicularly about a mile from Cape Town, every noise made below, even the word of command on parade, is distinctly audible. Humboldt remarks that the barking of a dog has been heard when the listener was about three miles above, in a balloon. This phenomenon is probably solely owing to the upward direction of the heated atmosphere, and will hold good sensibly in as well as out of doors, where the currents may be active.

We have thus far spoken only of air as a conductor; and this for the reason that it is the principal agent for that purpose with which we are surrounded; but amongst fluids we have one much more active,—namely, WATER: on this body it does not appear that direct experiments have been made to ascertain the measure of its transmissive power; but which would doubtless vary with its density: in the absence, however, of such deductions, it has been inferred analogically, or by calculations founded on the relative elasticity of air and water, that the velocity of sound in the latter is 4,900 feet per second. Dr. Franklin thought he heard, in water, the sound of two stones struck together, immersed in the same, at the distance of a mile. It is asserted that the human voice has been heard over water, without the aid of art, the distance of from ten to twelve miles,—namely, from New to Old Gibraltar; and the cannonading in a fight between the English and French, in 1672, was heard at the distance of 200 miles over water.

But it is amongst solids that we find the best conductors of sound; and iron and glass appear to possess that power in the greatest degree; the rate of transmission in the former, according to Biot, being 10½ times that in air, or 11,865 feet per second, while in the latter it is stated to be as much as 17,500 feet. Dr. Chladni estimated the velocity in certain materials to be as follows:—

Air being represented by .....	1
Silver was .....	7½
Copper.....	9
Iron.....	17

and wood of different kinds from 11 to 17

His estimate would raise the velocity in iron to 19,210 feet per second, but it is probably excessive.

In respect to wood, it is well known that the ear applied to one end of a long beam will hear distinctly the stroke of a pin's head at the other extremity; but be it observed, that the same will scarcely be heard across the breadth of the piece, so much has the fibre to do in the matter, and the more so as it is straightened and more free from the interruptions of knots. When one extremity of a stick is held between the teeth, and the other is placed in contact with a table, the scratch of a pin on the table may be heard, though both ears be stopped. So sonorous, in fact, is wood, that it is chosen as the fittest substance for most musical instruments: it is also the material of which the stethoscope is made, with which we listen to the action of the lungs and heart. The difference between those substances which consist of fibres and such as are composed of grains, in regard to power of conduction, is fully exemplified in this material, and is worthy of remark: cases will occur for which sometimes the fibres and at others the more homogeneous material will be best adapted.

Stone is reckoned a good conductor of sound, but it renders the tone rough and disagreeable: a well-made brick wall has been known to convey a whisper nearly 200 feet. (For its conducting power, see THE BUILDER, vol. 3, p. 443.) Of the earth as a conductor, we may judge by the fact that the North-American Indians apply their ears close to the ground to ascertain the approach of their enemies, when the distance is too great for the sound to reach them through the air: like manner an army, bivouacking in the open air, has been apprised of the advance of a hostile force, the trampling of men and horses being much sooner heard through this medium. Generally, all solid bodies, the mass of whose structure is susceptible of vibratory motion from sounds impinging on their external atoms, possess the capability of transmission.

From what has been adduced respecting the force of sound, and especially as regards the human voice (and to which may here be added that Wesley once preached, and was well heard, in a natural amphitheatre of hills, to a congregation of 20,000, who must have occupied a space of nearly an acre and a half), it would appear that scarcely any apartment can be too large for its powers; that where it fails in such as are of ordinary size, the cause must be in construction; and that where this approaches perfection, little provision will be necessary for enhancing the effect of these powers. And, as regards the powers of substances as vehicles, the inference is, that in buildings, these act mainly as deflecting agents, and their defects have to be guarded against.

We have dwelt thus much on the powers of various media to convey sound, because of the great regard which is given to *form over material*, in all questions on practical acoustics. The attractive fact of two persons placed considerably apart, but in the two foci of an ellipse, hearing each other comfortably (almost confidentially), seems to be the turning point at which all go off in the sole pursuit of form in designing an apartment; as if it were exclusively necessary and sufficient, in our churches and halls, that intermediate points should be provided for forwarding the voice of the speaker. We are convinced that what is mainly wanting is the prevention of deflecting agents, and the obtaining for the voice or other organ of sound the fullest undisturbed predominance for the time being. The thousand coughs, and sniffs, and hems, notes of admiration and interrogation, the shuffling and the creaking, even of good listeners, the hum of street sounds through single, and often rattling, casements, with a remainder, too numerous to mention, though singly inconsiderable, yet aggregately aggravating, being generally equal to at least one more voice (or other organ as aforesaid), will suffice of themselves to render indistinct the best enunciation; but when to these are superadded more permanent destroying agents, the property of some of which is to absorb or give passage to, and of others to furnish echoes of, a voice which we shall suppose is no more than sufficient in volume to fill the space without any to spare, or in its articulation is just distinct enough to be understood when carefully followed,—it is easy to perceive the almost impossibility of ensuring that any building, for oral (and aural) purposes, and of whatever form, shall be well adapted for hearing in.

We form the sole consideration, there would be a limit to the positions in which, in large apartments, the speaker and his auditors could be relatively placed, and the semi-ellipse, parabola, or some similar form of plan, with the rostrum in its focus, must prevail: with such an arrangement, the speaker harangues his audience the most advantageously, since, besides the circumstance of favourable construction, his auditors are exempt from the trouble of adapting themselves to the reception of sound from a new and perhaps unexpected quarter; but where many speakers have to succeed each other, it has objections which must be sufficiently obvious; and it becomes equally evident that where the form of plan referred to is not adopted, but one in which there is no limitation of the point from which the voice may issue, no such geometrical method can be pursued, or at least to any great extent carried out; but the acoustical arrangements must in the main be of another



kind, suited to that form of plan which may appear to be the most convenient for the occasion. To show that something else besides form is involved, instances might be quoted of buildings identical in principle in this respect, but the very opposites of each other as to hearing.

In the human ear, the tympanum is circular, and the fibres are of equal length, radiating from the centre to the circumference. Sir E. Home considers that it is this equality of the radii which adapts it to musical sounds: he found that the tympanum of the elephant was oval, the fibres varying in length like the radii of an ellipse, and he is of opinion that the long fibres enable the animal to hear very minute sounds, which it is known to do: on a piano-forte being played upon in the hearing of the elephant at Exeter-change, it was found that while the higher tones hardly attracted the animal's notice, the low ones roused his attention: in the great lion the higher tones excited great attention, but the flat ones were no sooner sounded than he lashed himself into the most frightful fury. Sir E. Home found this inequality of the fibres of the tympanum in neat-cattle, the horse, deer, hare, and cat. Buffon made many trials on persons who heard better with one ear than with the other, and who from that cause had what is called a bad ear for music, and he always found that the defect proceeded from their having unequal ears, and receiving thereby at the same time unequal sensations: such persons hearing false, also, without knowing it, sung false. There is here surely some excuse for "the man who hath not music in his soul!"\*

#### THE RESTORATION QUESTION.

OUR forefathers, for the last two centuries, spoil for us many beautiful churches, the work of the middle ages, but they did it honestly. They said they were ugly—the remains of a barbarous age—and only used them (where they had the means) as a groundwork for classical erections of various kinds; but as they did not understand or care for the old work—in fact, took no notice of it, except where it came in the way of their own productions in other parts,—they left it just as it was. Thus in almost every church, even in the towns, where the "improvement and beautifying" of churches was carried on to a great extent, and all kinds of beauties and deformities, of Egyptian, Indian, Grecian, Venetian, and Palladian styles, were thrust in regardless of cost, still there were left extensive remains of the veritable work of the first builders; not only the masonry of the walls and external mouldings unimpaired except by the gradual action of the weather, but even hosts of beautiful, delicate ornaments within, carved in stone or wood, or painted on the walls or roof, or on wooden panels. These were, indeed, often removed from their right place, and put to some absurd use, or hid in some corner, where only the searching eye of the antiquary has been able to find them; but still there they were, the real, actual work of the builders and painters of the mediæval times,—not destroyed, because they were not thought worth destroying.

And so, when we began again to understand and value these masterpieces of Christian art, there was hardly a single church where the student could not see the real, genuine works of the old builders, and read their spirit in them.

But, alas, experience has shown the truth of the accusation, that "Englishmen see with their fingers." From admiring, they passed to tracing and copying, and then to collecting specimens,—in plain words, stealing wood and stone, and much more frequently more valuable fragments of brass and glass.

But the method which has been adopted by the same class of people for the last few years, and which is now in the height of its flourish, is one certainly less palpably dishonest, inasmuch as it is done with the sanction and assistance of the guardians of the buildings, although, for my part, I do not see that it is a bit less unjust, either to past or future generations; but however this may be, one thing is certain, that it is by far more destructive to the buildings themselves.

\* To be continued.

Let us carefully examine the process. The object of the Ecclesiologists of the present day, when they have got hold of an old church, is to restore it.

Why, the very name of restoration is absurd. If a thing is removed or put to a wrong use or lost, you can restore it again when it is found.

If this has happened to the church in question—if it has been moved away from its place, or turned into a barn, or heaped over with ruins or the sea-sand, it can be restored; but this is not the case, at least in 99 out of every 100.

The building is just where it always was; it has never been anything else but a church, and every Sunday hundreds of people have worshipped in it. But it will be said in answer, "What we mean is to restore to the church all that has been lost of the original buildings and decorations."

By all means do it if you can—only find them first. Let us begin with the outside. For instance, in the year 1480 we will suppose the spire which rose 100 feet above the tower, after being carelessly left in bad repair, fell down one stormy night: the roof of the church, which it broke through, was soon after repaired, but the spire never replaced. Now, then, find that and restore it to its place. If it is not to be found entire hid in some neighbouring wood, or buried in the churchyard, or locked up in the church chest, then look for the parts of it; perhaps you will find its beautiful little windows somewhere in the church, or, at any rate, the stones built into the walls of the neighbouring mansion, or the church itself. Let us put them together again. Alas! it is hopeless; the spire is utterly lost, no human power can raise it again.

However, here is another task; let us see whether it will be easier. In the parish register we read the following entry (no matter about the old spelling):—"On candlemass day, in the year of grace 1379, Domina Alice Lenton did, for the love she had to our Lady, cause one image of her to be carved in Normandy stone, and set in a niche over the porch."

Let us see what there is left now. Certainly there is the niche, looking more like a hollow in an old decayed tree; but never mind that; where is the image? There seems to be something, an upright rounded lump of stone in the niche, and now that we fix our eyes upon it, it may very likely be the remains of an image. However, as the day is cloudy and there happen to be two or three swallows' nests which rather impede observation, let us get a ladder and make a close inspection.

Yes; now we see the figure indeed, and though worn considerably away, still there is beauty enough left to tell what love Mistress Alice Lenton had to our Lady. However, the whole of the front part of the figure is sadly decayed; time and the weather, air and rain, have eaten away nearly an inch in thickness from this part: look at the face,—the eyes still show, at least the outer edge of each eye in the shade of the hair which falls in slightly waving lines still so perfect; but the nose is worn to a slight ridge which can scarcely be felt with the hand, while the mouth and chin have quite disappeared. It is just the same with the front part of that robe which hangs in straight, sober folds, and hides the feet; it is quite gone.

Now, let us restore this that is gone—let us search for the lost parts—look in the dust and earth underneath—we may find some crumbled remains.

Oh, foolish thought! no one would entertain it for a moment; they are carried away, the winds know where; turned to earth, and who knows what beside. No human hand can ever restore them. By the help of what still remains, in the more protected parts of the figure, the imagination can restore them, and has done so a thousand times, and has even fixed a living expression on the smooth stone; but the hand can never do it. We might carry on the same ideas with regard to the inside. There may be, perhaps, five or six old benches with carved ends, high poppy heads, or else simply low square ends cut with trefoils or coats of arms; or there may be some few squares of encaustic tiles, or some elaborately carved stone sedilia in the chancel. Why should we destroy these or destroy the work on them by carving it over again? They suggest

such pleasing thoughts to us, and interest us so much, let us leave them still for those that shall come after. A restorer would take them away and supply their place with new ones done exactly after the old pattern; but, then, all the interest of them is gone.

But it may be said, "They are in such an unsound ruinous state as not to be fit for use." Well, supposing they are never required to be used now, as is the case with the sedilia in most country churches, surely this is no matter: leave them there unhurt till they fall to pieces, unless you can preserve them any other way without injury. Or if they are in constant use as the benches, surely in most cases they may be made firm and sound, by iron bands or props, which will not be seen, or at least will not disfigure them much; and of course if it has come to the worst, and they are quite rotten or broken past preserving, then let them be thrown away, their day is past, and let their place be supplied by new ones. Make them of what pattern you like, the most beautiful and suitable you can, only do not call it restoring the old: be honest, and acknowledge that it is a new piece of work. If then it be asked, "What are we to do to our churches?" I would say, "Better do nothing than too much." However there is plenty to be done. Clear away all the rubbish of the two last centuries; no matter whether it be meant for use or ornament, or whether it be the dust and dirt of careless neglect, it is all equally ugly and unsuitable: only do it carefully, for fear of injuring any old work beneath; then substitute for all this the best you can now put. No amount of modesty can hide from us the fact, that some church architects and decorators (not all) have already surpassed all the excellence of those times.\*

SERVATOR.

#### DISFIGUREMENT OF LONDON-BRIDGE.

LAUDABLE zeal is being shown for the restoration of works of merit executed in bygone days, but let us not fail to be equally zealous in preserving the works of our own age from injury. No one can view London-bridge but must admit that it is a work of noble grandeur. It is with regard to the building recently erected, and not yet finished, on the Southwark side, that I call attention. The most casual observers cry shame, to see a building thus intruded upon that magnificent structure. Upon inspection it will be seen that the neighbouring buildings, viz., Fishmongers' Hall, the Adelaide Tavern, and Fennings' Wharf, have been reared at a judicious distance, so as not materially to injure the general effect of this bridge. So much do I deprecate it, that I can only say: if a subscription be set on foot for its removal, I will most willingly subscribe my mite, and have no doubt that many others will do the same. I will give you a simple rule of three sum: if, as it has been suggested, Mr. Barry should be hanged for what he has done at the Westminster Palace—what sort of punishment do the parties concerned on London-bridge deserve?

A CITIZEN.

#### IRON ROOFS, NEW BAZAAR AT CORK.

MR. EDITOR.—As a pendant to another picture, I offer you a sample of insane ironfounders, in the following tenders delivered to the Corporation of Cork for erecting wrought-iron roofs to the New Bazaar. Mr. Alexander Deane, architect:—

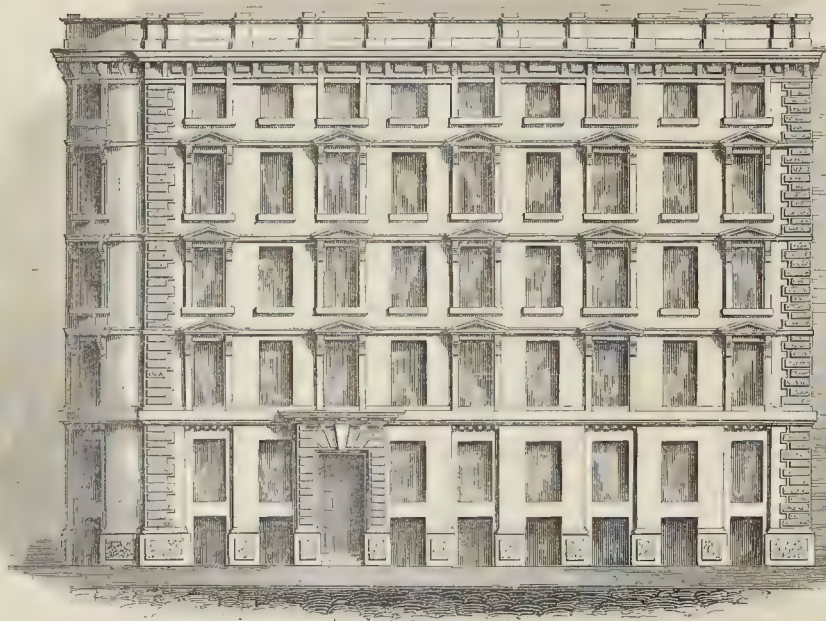
Beale, Scott, and Co., Cork	£3,000
Fox, Henderson, and Co., London	2,600
Paul, McSwiney, and Co., Cork	2,280
Perrott and Sons, Cork	2,090
Mallet and Co., Dublin	1,220

This, as we say in Ireland, "Bangs Banagher;" but mark the sequel: Mr. Mallet's tender having been accepted, he is called upon to perfect his securities and proceed with his contract; hereupon he writes to the Market Committee a letter, in which the plea of a mistake is urged in the thickness of glass, though the specification is quite clear, and he offers the Market Committee to go on with the contract if they allow him to use 1-8th glass instead of 3-16ths, and also advance him 90l., which arrangement has been agreed to, much to the dissatisfaction of the other competitors. R.

\* Although we dissent from the tendency of these remarks, we have given the communication a place, as likely to afford a useful check to some would-be restorers falling away into destructives.

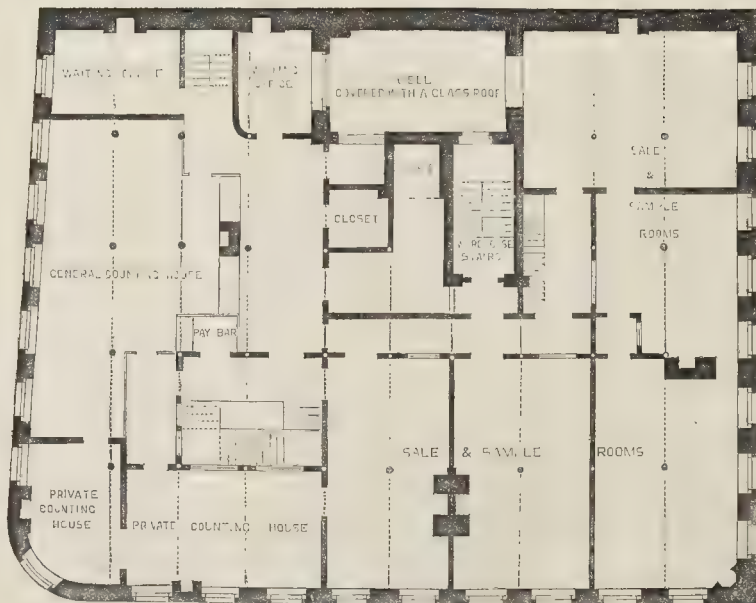


## A MANCHESTER WAREHOUSE.—MR. J. E. GREGAN, ARCHITECT.\*



ELEVATION.

10 5 0 10 20 30 FEET



PLAN OF FIRST FLOOR.

[\* See page 409 in our present number.]



OLD HOUSE AT STIDD, NEAR RIBCHESTER,  
INTENDED FOR FOUR FAMILIES.\*



THE BRITISH LINEN COMPANY'S BANK,  
EDINBURGH.

AMONGST the most important and costly buildings added to Edinburgh lately is the British Linen Company's Bank in St. Andrew's-square, from the hands of Mr. Bryce. On the first view the façade presents, from its great altitude, high degree of ornamentation, and row of terminal statues (seen above the middle against the sky), a novel aspect. I cannot avoid thinking, however, that more should have been made of it. It is not every day that an architect has a first-class public building to design; it is seldom that a fine site is available; and rarely indeed does he obtain access to some 30,000*l.* for the development of his ideas: when he does so he ought to take pains and do his best; if he fail he is amenable to public criticism.

The ground story is brought forward and formed into a high rusticated basement for a hexastyle Corinthian ordonnance above. The columns being detached, the front rooms on the ground floor must suffer from the great thickness of the wall entailed by the projection for their support. However, Mitford says,—“Magnificence must be paid for in convenience as well as money.” The doorway occupies the centre of the five bays, and has, in common with the windows throughout, dressings of the ordinary description—excellently membered, it is true, but incontestably of the most hackneyed form. For the second-floor windows the stereotyped triangular pediment is used—a feature whose propriety has been often questioned, but the distressing repetition of which seems to indicate a sterile fecundity of imagination among architects. The building in question is the third in the square (and there are others throughout the city) by the same architect, in which those precious pediment dressings appear on the second-floor windows. What would be thought of an author who introduced the same chapter into half-a-dozen essays on different subjects?

The details are mostly well drawn; but I cannot extend commendation to the choice and disposition of the characterizing features. The high basement seems to be a favourite of Mr. Bryce's, though it detracts much from the dignity of the ordonnance, and militates against the unity of the whole. We are not aware of any advantage secured by its

adoption; on the contrary, it seems to have induced an altitude extravagant for the length of the façade, and the painful sacrifice of a continuous entablature for one broken over each column,—a practice reprobated by the best writers. “Everything,” says Professor Hosking, “tending to break the leading lines in a composition should be avoided;” and, alluding to the abuse in question, he says, “it makes the ordonnance,”—what should be the gist of the composition, “a mere excrescence.” Again,—“the practice of raising lofty basements to support columnar ordonnances is injudicious.” \* \* \* \* “The upper and crowning cornice, if in proportion to its own ordonnance, must be disproportioned to the whole elevation, which takes from that member a character of meanness, as it may or may not be fitted to its whole height.” The cornice adopted in this instance is not the legitimate one of the order, from which it differs greatly in size and in having modillions. To some observers Mr. Ritchie's six statues may constitute an attraction, but their position is as fatal to the appreciation of their merits as it is injudicious in reference to the overloaded columns below.

I shall have something more to say.

CAUSTIC.

**RAGGED SCHOOLS, HOLLOWAY.**—On Wednesday, the foundation-stone of a ragged school was laid in Brand-street, Holloway. *Honorary* architect, Mr. James Harrison. It is in the Tudor style, and will have a residence for the master and mistress. The dimensions of the building are—depth 50 feet, breadth 28 feet, extreme height 48 feet. The school-rooms will accommodate 600 children of both sexes. The interior is to have an open timber roof.

**THE PARIS EXHIBITION** of works of living artists is fixed to commence on the 15th of December next. Englishmen will be allowed to exhibit on exactly the same conditions as natives, provided their works be declared of sufficient merit by a jury nominated by the artists themselves.

**LAW DECISION ON SALE BY AUCTION.**—At Wolverhampton lately, the County Court nonsuited an auctioneer, as plaintiff, in a case wherein the defendant refused to pay for a boat knocked down to him while the auctioneer was standing on another, for which the defendant urged in evidence that he had meant to bid.

BIRMINGHAM ASSESSMENT.  
BLIND SURVEYORS.

SEVERAL correspondents are very anxious that we should point out, with reference to the tenders for assessing and mapping Birmingham,† that architects, surveyors, and valuers can be just as blind on an occasion as builders, and they seem to think that we are disposed also to be blind for once, and overlook the absurd discrepancies which appeared in the tenders in question.

The differences are, indeed, most striking and distressing. We find one well-known respectable professional man asking 10,850*l.* for making the assessment which another individual is willing to undertake (after a fashion) for 400*l.*; and while one puts down 1,935*l.* for the map, there is another who wildly offers to do it for 50*l.*

The fact is, the majority of those who tendered on that occasion knew nothing about the matter, and had no means of obtaining correct information as to the trouble it would involve. They made a guess, trusted to chance to bring them out of it, and deserve reprehension for their pains. In making their selection, the board should remember that a cheap assessment in the first instance may be a very dear one ultimately: they ought to appoint a man of known ability and reputation, and should pay him properly, that the work may be properly done.

The guardians have since resolved that tenders exceeding 2,000*l.* should not be entertained, and selected the following eight from the competitors for further consideration,—viz., Messrs. G. Dyke, Leversege and Corfield, G. Thompson, Hebbert and Fautic, J. D. Paine, I. Newey, C. W. Robertson, and P. Gannon.

**SHIP CANAL THROUGH CENTRAL AMERICA.**—We perceive that a convention between Great Britain and the United States relative to the establishment of a communication by ship canal between the Atlantic and Pacific Oceans has been signed at Washington and ratified. We hope, however, that the statement of our Bahama correspondent, Captain Nelson, of the Royal Engineers, in our impression of 27th July last, will not be disregarded.

† See p. 408.

\* See page 409 in our present number.



### THE COMPETITION FOR DRAINAGE OF LONDON.

PERMIT me to ask as a favour that you will insert, in juxtaposition, the following extracts from Mr. Frank Forster's report on his plan for draining the southern portion of the metropolis, with some from one of the 116 plans submitted to the commissioners of sewers in September last. I am desirous to enable the public to attach a proper value to the assertion of Mr. Forster, "that he has derived no practical assistance from any of the plans;" and also to render transparent the injustice which the commissioners are practising upon a great portion of the 116 competitors by allowing their ideas to be "used up" by their princely-paid servant, without remunerating them, or awarding them even an empty honour.

The plan extracted from one of 46 out of the 116; being the greatest number that agreed upon any one principle of drainage. Amongst these forty-six, it is not altogether unreasonable to suppose that the whole "material" for Mr. Frank Forster's plan has been supplied, when it is seen in how many essential points his plan agrees with only one out of the forty-six; and when it is remembered that the committee on the competition plans reported themselves to have "carefully examined and considered the whole of the plans and suggestions" submitted to the commissioners.

I shall preface the extracts by explaining that the main feature of Mr. Frank Forster's plan is, in principle, identical with that of the forty-six plans above alluded to;—*viz.*, "An inland tunnel (or main sewer) running, in a parallel direction, to a reservoir in the marshes below London, and discharging sewage, not required for manure, into the river below tidal influence."

Mr. Frank Forster's Plan sent in to Commissioners by —.

"It is proposed to form a double reservoir, capable of holding at least twenty-four hours' drainage."

Reservoir to discharge its contents at high water, delivering them by means of pipes near the middle and at the bottom of the river.

The sewerage will be lifted into the reservoir by means of an engine from the main sewer.

And (I propose) to connect with the chimney of the smoke-consuming furnace of the engine, all the passages from which any gases could escape from the sewer.

It is not proposed that the engines should have to raise all the storm-water or land-floods; these will be provided for in extraordinary cases by the four existing outlets."

These extracts will, I think, fully establish the strong similarity in principle, and I doubt not that, if the remaining forty-five plans could be compared with Mr. Frank Forster's, the whole tale would be told. I do not mean to imply that Mr. Frank Forster has no original ideas of his own; but I do assert and maintain that in this case it would have been only just to competitors, as well as graceful in the Commissioners of Sewers and their chief engineer, to have acknowledged that their plan, though it may have been original, is not novel, being already embodied in the forty-six plans alluded to as "carefully examined and considered" by them.

Several other competitors have sent similar statements: amongst them Messrs. Dredge

and Stephenson put the following in juxtaposition:—

August 24, 1849.—  
"We propose: The sewer to be divided into sections, each having a sufficient inclination to generate a stated velocity, this inclination being obtained by lifts at certain stations, where the sewerage will be pumped up by steam power in a closed shaft."

"The separation of the sewage from the surface waters."

October 12, 1849.—  
"Running a main outfall sewer along the line of the Grand Surrey Canal, and having one engine station near Cold-blow-farm; where the sewerage will be pumped over the surrounding country, or pumped through a pipe into the river below Greenwich marshes."

Mr. Frank Forster (August 1, 1850), says,—"I have adopted the following principles for my guidance:—To maintain a continual and unremitting flow, with the aid of lifts where necessary, in all the sewers along their whole length, by which the evils arising from pent-up sewerage may be avoided. To construct the sewers at inclinations so proportioned to the volume of fluid to be carried off by each, that the velocity of the current shall keep them clear of deposit. This lift and shaft I propose to place completely under cover."

"To provide a natural escape, by the power of gravity alone, for storm waters and land floods, independent of the ordinary sewers."

"I beg to recommend the top of Woolwich Reach as the point for delivering the sewage into the river. The course of the main sewer will be along Greenwich marshes, Trafalgar-road, to the Ravensbourne, across Union-street and Collier-street, where the south main line diverges. This continues by Loving Edward's-lane, along the Old Kent-road, to Surrey Canal bridge, along Albany-street, in a straight line across to St. Mark's-road, and by Camberwell New-road to St. Mark's Church, Kennington."

### ARCHITECTURE AND BUILDING IN IRELAND.

THE contract for plastering and decorating the interior of High-street Chapel, Dublin, was some time since disposed of to Mr. Buckley for 1,000*l.*; the plan of building is a Greek cross. Mr. Patrick Byrne, architect to the city, is superintending the execution of the work; portion of the ceiling over altar is completely finished.—The Poor Law Commissioners are about building union workhouses at Mitchelstown, county Cork, and at Portumna, county Galway, according to drawings by their architect, Mr. George Wilkinson.—The Board of Guardians of the Dunshaughlin Union have advertised for proposals for the erection of a school-room and dormitory for the female workhouse children.—The board of superintendence of City Prisons, Dublin, are about erecting a new call-hall, consultation-room, stores, &c., at Grangegorman Penitentiary, and purpose remodelling the present inconvenient chapel, and erecting a new altar therein, plans having been submitted for same by the board's architect, Mr. J. S. Mulvany.—The Board of Public Works purpose erecting a new kitchen, bath, fumigating, and reception-rooms, instead of those belonging to the city department, adjacent to the laundry, and which are to be given up to their use by the board of superintendence.

A valuable application of Mr. Forsyth's well-known Hercules to the purposes of a swivel bridge, has just been completed by Mr. Barry D. Gibbons, civil engineer to Kingstown Harbour Commissioners. It has fifty feet open, one end turning upon a centre and revolving upon a circular railway; its weight is upwards of twenty tons, and so well poised and adjusted that a power of 200 pounds freely moves it.—The Grand Canal Company, by adopting this plan, might, at a small expense, remove the greatest nuisance in or near Dublin—Ringsend-draw-bridge.

The late Right Rev. Dr. Fleming, Bishop of Newfoundland, bequeathed in his will the sum of 300*l.* towards the completion of the convent

of St. John's, Newfoundland, plans, &c., for which have been furnished by Mr. Mulvany. He also left the sum of 1,000*l.* for a figure of a "dead Christ," to be made by Hogan, the Irish sculptor, and placed in the Cathedral of St. John, Newfoundland.

The O'Loghlen Testimonial has been placed, during the past week, in the large entrance hall of the new Court-house, Ennis. The statue is eight feet high, and represents Sir Michael in his judicial chair, draped in full dress costume of Master of the Rolls: it is placed on a pedestal five feet high, at the corners of which stand two female figures representing "Justice and Mercy." Mr. Joseph R. Kirk, R.H.A., sculptor. Cost, 1,500*l.*

On Tuesday week an order arrived from the contractors for completing the Cork and Bandon Railway, Messrs. Fox, Henderson, and Co., to the sub-contractor, Mr. Brown, directing the immediate suspension of the works, and 200 men were thrown idle. It is stated by the directors that the stoppage of the works was resorted to by the contractors to coerce the directors not to issue debentures to other parties than the contractors, the borrowing powers of the company being limited to 80,000*l.* Of this sum the Exchequer Loan Commissioners are to advance 35,000*l.*, of which the contractors are now entitled to 10,000*l.*, having certificates for the execution of 22,000*l.* worth of work, besides being shortly entitled to 10,000*l.* more; additional works, to the amount of nearly 22,000*l.* more, being executed. The directors state that the contractors are bound by their deed of contract to complete the line within the specified time, and upon failure thereof, that they are empowered to void the contract and complete the works themselves.

The sum of 342*l.* which has been collected by subscription in Dublin towards the erection of a monument to O'Connell, has been appropriated to the decoration of a stained glass window in the Rev. T. Matthew's new chapel.

—The managing committee of the Mendicity Institution have advertised for designs for appropriating a portion of the present buildings to baths and wash-houses for the use of the poor, and have offered a premium of five guineas for the best plan.—A member of the profession has offered his services gratuitously to the Dublin Mechanics' Institute for the decoration of their theatre, and the erection of additional class-rooms.—The entire of one side of Park-street, Dublin, has been recently pulled down, for the purpose of erecting a new terrace thereon, by order of the Hon. Sidney Herbert, upon whose property the improvements are contemplated.—The Earl of Erne is about erecting a new butter market on his estate at Lisnaska. The style is Tudor Gothic.

### STAINED GLASS.

St. Matthew's, Bank Foot, Bradford.—In the new church of St. Matthew's, Bank Foot, at Bradford, Yorkshire, the east window of the chancel has been fitted with stained glass the work of Messrs. Barnett and Sons, of York, of which our correspondent speaks well. The window is in the Decorated style, and consists of three lights with flowing tracery in the head. In the centre light is a representation of the crucifixion, with the Magdalen at the foot of the cross. Above the head of the Saviour are the letters I.N.R.I., and on either side a pater bearing the legend "Bibite et hoc omnes," and the sacramental cup. In the left hand, or north light, is a figure of St. Matthew, the patron saint of the church, with an open volume, and a scroll, on which is inscribed "Liber Generationis Jesu Christi," and in the contrary light a figure of St. Thomas, bearing the evangelist symbol of a square rule, and a scroll inscribed with "Beati sunt qui non viderunt et crediderunt." This last saint has been introduced, the window being a tribute of affection from Mr. E. B. Wheatley, of Mirfield, to the memory of a parent. It is due to the donor of this window to state, that by his noble generosity he has laid his fellow churchmen under another tie of gratitude, in addition to many, the fruit of former years, and we hope he may live long to witness the happy results of Christian liberality so holy and so free. The architects were Messrs. Mallinson and Healy.



*St. John's Church, Waterloo-road, Lambeth.*—A painted window, containing 98 feet super. of glass, has been recently put up in the east window of St. John's Church, Waterloo-road. The design comprises in the centre a crucifixion, in the manner of the early Christian painters, with figures of St. John, Mary Virgin, Mary Magdalene, at foot of the cross, &c. The cross is surmounted by a pelican in her piety, above which are angels holding a crown of vine leaves. The border contains figures of the four Evangelists, with their emblems beneath the feet of each; also the *Agnus Dei*, chalice and wafer, &c., comprised in a rich mosaic, in which are introduced passion flowers, crosses, the emblems of the Trinity. The colouring throughout is rich. In the design generally a severity of feeling adapted to the devotional character of the subject has been observed, at the same time with an endeavour to avoid the imperfect drawing of the early artists. The work has been executed by Mr. Wilmshurst, from the designs of Mr. N. J. Cottingham, at a limited cost. The reredos and sacarium are decorated in polychrome (less successfully than the window); and a large painting of the entombment of our Lord is in progress for the former. The style of the church is Domestic Greek, so to speak: the strictly correct character of glass for such a building is still a question.

## MEMS. PROVINCIAL.

The foundation stone of a new tower to Halstead old church was laid on the 20th inst. Mr. Clarke, the diocesan architect, furnished the design.—In a field at Hadstock, known as the "Sunkin Church Field," the Hon. Mr. Neville has discovered a Roman villa, with hypocaust, flues, &c.—It has been determined to proceed with the extension of the chancel and the Norman east end of St. Peter's, Northampton, on the plans of Mr. Scott, architect, as amended from late discoveries, leaving the contract for interior fitting up for further subscription.—A parsonage house is about to be erected at Bursledon, on plans furnished by Messrs. Hives and Bedborough, of Portland-street, Southampton, architects.—Workmen are engaged in fixing a new lightning-conductor to the spire of Salisbury Cathedral.—Lord Campbell, while complimenting Monmouth on the condition of the judges' lodgings, in his charge to the grand jury, complained of the wretched state of those in the adjoining county of Gloucester, which, said his lordship, are not fit to live or breathe in.—The Liverpool Gas Company have, as usual ever since those great reductions of price which were to ruin them, announced a dividend of five per cent. for the last half-year, being the highest allowed them by their own Act of Parliament.—An aisle and small gallery, with about 250 additional kneelings, is to be added to St. Paul's Church, Seacombe.—A proposal has been originated in Darwen to construct public baths, as a memorial, in that town, to the late Sir Robert Peel.—The foundation-stone of the church of St. Jude, in the Inkleys, Birmingham (Mr. C. W. Orford, architect, and J. Wilson, builder), was laid on Wednesday week.—Congregational schools have been erected at Wednesbury, at a cost of 1,400l. Mr. B. Round has given 550l. towards the erection. The building is of stone, in the Early English style, with upper and lower room, each measuring 55 feet long by 28 feet wide, and accommodation for upwards of 600 children.—It has been resolved to form a "Peel Park" at Macclesfield, and, if possible, also to establish a free library and reading-room, in honour of the deceased statesman.—A sort of district preparatory Exhibition of Industry has been got up at Nottingham, which is said to be both extensive and numerously attended. One of the local newspapers is being printed in public, by way of industrial exhibition. The Mechanics' Institution is the *locus in quo*.—The Leeds Town Council are about to seal the contract entered into with Mr. George Clark Pauling, of Manchester, for the formation of new sewerage. The amount of tender is 39,804l., which is 5,154l. more than that of Messrs. Warren and Dunroche, who, as stated in the *Intelligencer*, declined to complete the contract, which was offered to them. The work will be commenced forth-

with.—A new parsonage house is about to be built at Holbeck, on a plan provided by Messrs. Perkin and Backhouse, of Leeds, architects.

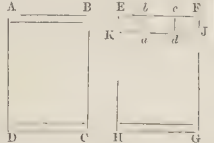
## Books.

*On the Strength of Materials, with original and useful Formulae specially applied to Tubular Bridges, Wrought-iron and Cast-iron Beams, &c.* By THOS. TATE. Author of "Principles of Differential and Integral Calculus," &c. Longman, Brown, Green, and Longmans.

*Tables of the Strength and Deflection of Timber.* By WILLIAM LEA, Surveyor. Simpkin, Marshall, and Co., Stationers' Hall-court.

Mr. Tate is an indefatigable and a useful author. The purpose of his present volume is sufficiently indicated in the title. It is full of valuable algebraic and other formulæ, on which such results as the following are established:—

*Why the Cellular Structure exhibits such Strength.*—Let *ac* and *eg* represent the sections of two beams undergoing transverse strain, in all respects the same, excepting that in the former case the material at *ab* is composed of horizontal plates in contact



with each other, whereas in the latter case the material is arranged in the form of cells; the horizontal plates being connected by vertical plates or ribs, *a, b, c, d, e, f*, &c.

When thin plates of wrought iron are subject to compression, they double or crumple up long before the material would be destroyed under ordinary circumstances by crushing. In the first case of construction (1st fig.), no means are employed to counteract this tendency to double; but in the latter case it is different. Here the horizontal plates, as well as the vertical ones, have a tendency to double up; but the direction of this tendency in the former is in a plane at right angles to the plane in which the latter would take place; that is to say, the horizontal plates *ef* and *kl* tend to crumple vertically, while the vertical plates *ab, cd, &c.* tend to crumple horizontally. Again, the direction of greatest strength in the vertical plates is in the vertical line, and at the same time the direction of weakness of the horizontal plates is also in the vertical line, and *vice versa*: hence the horizontal plates *ef* and *kl* are prevented from crumpling by the vertical plates *ab, cd, &c.* and *vice versa*. It is evident that the horizontal plates *ef* and *kl* could not crumple without exerting a vertical strain upon the vertical plates *ab, cd, &c.*; and, in like manner, the vertical plates could not crumple without exerting a horizontal strain upon the horizontal plates.

It appears, therefore, that the object of the cellular structure is to counteract the tendency which thin plates, acted upon by a compressive force, have to crumple, and thus to cause the tubular beam to be subjected to the same laws of transverse strain as an ordinary beam. Hence it is not necessary that the bottom part of the tube should have a cellular structure.

Mr. Lea's "Tables" are designed for the practical use of architects, builders, engineers, and others interested in converting timber into scantlings for building purposes generally, or for otherwise sustaining transversely any given pressures. The timber selected as the unit or standard of comparison is red pine of a given strength and elasticity, and the constants for various species of timber are derived from the mean results of experiments made principally by Professor Barlow.

*Linear Tables for Facilitating the Calculations of Arches and Earthwork.* By ARTHUR W. FORDE, C.E. T. W. Saunders, Charing-cross.

In the use of these tables the process of calculation is altogether mechanical. The lines and figures of which they are made up are drawn on cardboard, on which the author conceives that more dependence may be placed than on ivory or box-wood scales, so far as regards atmospheric influence, but whether he includes the influence of damp in general amongst the variations referred to, does not appear. Unquestionably, such tables are of a somewhat tender frame and texture, liable to other mischiefs besides mere atmospheric influences. An accidental crease, or blister from a drop of ink or other fluid, might easily

involve irremediable damage. Nevertheless, to otherwise useful tables, such objections are by no means vital, and the author is of opinion that "the chance of mistake by the ordinary mode of computation is much greater than by using these tables." They are very delicately drawn, and the cardboard is firm and good. The accompanying explanation requires, of course, some careful study previous to practical use of the tables.

*The Civil Engineers' and Surveyors' Companion and Assistant, in Setting out Slopes, Curves, Cuttings, and Embankments, with Comprehensive Tables, &c.* By EDWARD RYDE, Land Surveyor and Civil Engineer. Published by the Author, Upper Belgrave-place, Eaton-square.

Unfortunately *The Civil Engineers' and Surveyors' Companion* is likely to be more a companion in adversity than an assistant, as slopes and cuttings have most of them long since sloped and cut. It is to be hoped, however, that there may be another "good time coming." Meantime Mr. Ryde has, though somewhat tardily, or at least untimely, made laborious and diligent use of past opportunities. The scheme and its development are, he states, purely and originally his own, and are indeed, he adds, of far too prolix and wearisome a nature to be likely to procure many competitors. Though tedious in development, however, the tables are clear and concise in result, and worthy hence of procuring many purchasers, though few competitors. *Ex facie*, while of easy reference, they obviate entirely the necessity of calculation, so that the tedious complicated and difficult process of setting out slopes and curves by the existing system, may thus be simplified by tabular arrangement.

*A Continuation of the Memoirs of a Working Man, illustrated by some original Sketches of Character.* London: C. Cox, King William-street, Strand.

THE favourable reception given both by reviewers and by general readers to the "Memoirs of a Working Man," has naturally suggested a "Continuation" of them, in accordance with a desire expressed by readers to have what was wanting supplied, with more explicit details on some points in his history, formerly treated of within rather too modest dimensions. The tendency of the whole, in its probable influence on working men, is excellent, and we are inclined to think that a member of a class, if imbued with right principles himself, and capable of communicating these in attractive or even in merely intelligible language to his fellows, will constitute a potent and practical moral teacher. On the mere law of class imitation this will be so. The natural tendency of tribes possessed of common similitude in nature or in circumstance to imitate leading or current tribe examples, is well known, whether amongst men, women, or children, and not amongst human tribes alone. As to capability, the present author displays far more than an average power over his mother tongue. His style is fluent and correct, and even often elegant, though simple and unassuming, and thus it constitutes an admirable instrument in the hands of such a teacher, who will produce impressions all the deeper in the hearts of his fellow-workmen, that they have much to sympathise with, in the interesting narration of the teacher's personal and domestic troubles and anxieties,—*so* like their own."

## Miscellaneous.

**SMOKY CHIMNEYS.**—The following cure for a smoky chimney of the olden time is taken from a book of receipts about 1580 (the spelling is modernised):—"How to help Smoking Chimneys.—If the chimneys be large, and carry some good length and breadth with them, then may you erect or build a false back and sides to your smoking chimneys, so as there may be a distance of three or four inches between the old back and the new: raise this new work a foot above the mantle-tree. Warranted by a gentleman of Ireland, being a great practiser in artificial conclusions. Qre."—W. P.



**RAILWAY JOTTINGS.**—It appears that light locomotives are likely to be useful not only on branch but on main lines of railway, as evidenced lately by a very successful series of experiments on the Edinburgh and Glasgow, with one of Messrs. England and Co.'s, of London. The dimensions of this engine are:—Cylinder, 9 inches diameter; stroke, 13 inches; driving-wheels, 4 feet 6 inches diameter; boiler, 2 feet 3 inches, with 109 tubes, 11 feet 4 inches long, and 1½ inches in diameter: entire weight, in full working order, about 10 tons. The engine is guaranteed to work trains of six carriages, with passengers, at the rate of 45 miles an hour, and ascend an incline not exceeding 1 in 100 at a proportionate rate of speed, with a consumption of coke not exceeding 10 lbs. per mile. In point of fact, for a fortnight past, it appears that two trips a day have been made with the express train, on 7 or 8 lbs. of coke per mile, and the distance easily run within an hour and a quarter, drawing six carriages, besides luggage-vans, &c. Part of the trip on Saturday last, says the *Glasgow Guardian*, "was made at the rate of 65 miles an hour, and there cannot be a doubt that Mr. England has, by this invention, put it in the power of railway companies very materially to economise the expense of management."—A survey of a new line from Hawick to Northallerton is in progress. This line, it is said, would shorten the distance from Edinburgh to London full 30 miles compared with the present route.—By a series of levellings made in the last four years over an extent of about 200 acres, where drainage is carried on at Chat Moss, it appears that a subsidence has taken place to the extent of one foot per annum. The Liverpool and Manchester line, as our readers may recollect, is laid on a floating foundation across this morass.—A movement is in progress to urge the Bristol and Exeter Company to form a line from Bleadon to Wells, as authorised by their Act.—The Cork and Bandon Railway is carried across the Vale of Chetwynd by a viaduct of four large arches, 90 feet high. There are three viaducts on the line, and one tunnel, 900 yards in length: the cost, when all is completed, will be 252,000*l*.

**ROYAL DUBLIN SOCIETY.—DISTRIBUTION OF PRIZES.**—The prizes were last week distributed to the exhibitors of the best specimens of arts and manufactures: the principal are as follows:—Mr. John Heming, for Cambric dresses, first gold medal; Messrs. Telford, for large church organ in mahogany case (drawings by a pupil in Dublin School of Design), first gold medal. The second gold medals were awarded to Messrs. Atkinson and Co., for poplins, gold tissue, broadened, &c.; Messrs. Fry, for striped and figured tabinets; Messrs. Pim Brothers and Co., for single figured and corded poplins; Messrs. John Holden and Co., for sewed muslin; Messrs. Lambert and Bury, for Limerick lace dress, &c.; Messrs. McDonnell and Co., ream of 34lb. fine laid medium paper; Messrs. Elkington, Mason, and Co., electro-plated articles; Mr. Arthur Jones and Mr. W. G. Rogers, specimens of wood carving; Messrs. Grendon and Co., locomotive passenger engine and other machinery; Mr. Wilfred Haughton, railway friction buffer; Messrs. Courtney and Stephens, a patent double-acting platen letterpress printing machine, &c. The third gold medals were awarded to Messrs. Hatton and Smyth, for Balbriggan hosiery and loom at work; Messrs. Wilson and Son, hosiery and loom at work; Mr. T. Bennett, jewellery; Mr. Samuel Bradford, cutlery; Messrs. Cook and Sons, marquetry; Mr. Nicholas Lombard, carving and gilding; Mr. Samuel Hudson, sadlery; Mr. De Groot, carving; Mr. Wm. Brown, a church firing organ in Gothic case; Mr. John Bray, double-action harp; Mr. John McNeil, musical instruments; Mr. Saunders, gas cooking apparatus, &c.

**ELECTRO-MAGNETIC MOTIVE POWER.**—This long-looked for desideratum has been at last accomplished, if American authority is to be relied on. At the Smithsonian Institution (a respectable one, as our readers already know), Professor Page, it is said, has stated that there is no longer any doubt of the practicability of applying electro-magnetic power in place of steam. Heretofore length of stroke was wanted, but the Professor says he can make an electro-magnetic engine with a stroke

of six, twelve, twenty, or any number of feet. Professor Page stated that he had reduced the cost so far that it was less than steam under many and most conditions, though not so low as the cheapest steam-engines. With all the imperfections of the engine, the consumption of 3lb. of zinc per day would produce one-horse power. The larger his engines, contrary to what has been known before, the greater the economy. There were yet practical difficulties to be overcome.

**ST. LUKE'S, CHELSEA.**—A rumour having gone abroad that the guardians, wisely, we think, had resolved, by a majority of one, to appoint a paid surveyor to assess the parish, a vestry has been held, and, by a majority of 112 to 10, a protest passed against such appointment, as in direct opposition to the opinions of the rate-payers.

**THE NORTH LONDON ART-ARTIZAN SCHOOL** is very fully attended, and appears in other respects to be progressing very favourably. Subscriptions, however, are needed, as the payments by the pupils do not cover the expenses. There are 200 scholars, and arrangements are being made to establish a female class, under supervision of a committee of ladies. Application has been made to the Board of Trade for the loan of additional casts—a favour, we suppose, that can scarcely be refused.

**SALE OF THE KING OF HOLLAND'S PICTURES AT THE HAGUE.**—The distribution of this collection to pay the late king's debts, is much to be regretted. The Marquis of Hertford and the Emperor of Russia are amongst the largest buyers. For some of the paintings very high prices were obtained: one day's sale brought more than 50,000*l*. (Is the auctioneer paid a commission?), and the total realised is more than 100,000*l*. Amongst the most costly lots are "Christ at the Tomb," by Sebastian del Piombo, 2,333*l*; the "Holy Family," by Raffaele, 1,375*l*; "La Vierge de Pade," by Andrea del Sarto, 2,520*l*; "La Colombine," by Leonardo da Vinci, 3,333*l*; "Leda," by the same, 2,041*l*; and "Portraits of Philippe le Roy and Madame le Roy," by Vandyke, 5,300*l*, the two.

**PUBLIC BATHS AND WASH-HOUSES.**—The following return shows the number of bathers, &c., in the week ending August 17, at three out of the four London establishments for the labouring classes.

	Number of Bathers.	Receipts.	Number of Washers.	Number of Washing.	Receipts.
The Model Baths &c. Whitechapel	1296	2 4 4	284	6051	3 4 9
St. Martin-in-the-Fields	6108	8 5 7	806	1011	7 0 0
St. Mary-le-Bone	5349	72 17 7	94	101	0 10 0

**DECORATORS, ARCHITECTURAL MODELERS, AND BUILDING-IMPROVERS** should not omit to apply for space in the International Exhibition. There will be no chance of obtaining it if intimation be not given to the local committee before Oct. 31. England must do her best.

**THE FIRE AT GRAVESEND.**—The loss by this fire, as estimated by the surveyors of the London insurance companies, is 80,000*l*. The offices that will principally suffer are the following:—Kent Fire Office, 10,000*l*; Globe, 8,000*l*; Royal Exchange, 8,000*l*; Alliance, 8,000*l*; Norwich Union, 7,000*l*; Phoenix, 7,000*l*; West of England, 5,000*l*; Mutual, 2,000*l*; Star, 1,000*l*; Commercial, 2,000*l*; total, 58,000*l*.

**COOKING BY GAS.**—A Southampton correspondent, Mr. John Elliott, claims the original idea of cooking by gas for Mr. Sharpe, the scientific manager of the Southampton Gas Works, who, he says, twenty years since publicly demonstrated the feasibility and practicability of thus applying gas to the process of cooking, and who thirteen years since carried his theories into practice. Mr. Elliott therefore thinks it is "too bad in 1850 to dispute this gentleman's right to the discovery which he perfected." Our correspondent, we suspect, however, is mistaken in supposing that any one is engaged, at this time of day, in claiming the idea of cooking by gas, unless it be Mr. Sharpe himself, of the merits of whose claim we know nothing. Cooking by gas we have ourselves seen in practice at

Edinburgh at least fifteen years since. This may be a fitting time to remind the public of the claims of the originator, but others, so far as we can judge, are merely embracing the like opportunity of pushing their own special modes or manufactures into notice, without any design to claim the origin either of the idea or the practice. Mr. Sharpe is also said to have applied gas to heating baths many years since.

**WATER FOR LAMBETH.**—What has been done (practically) since last season to obtain a better supply of water, and of a pure quality, for the inhabitants of Lambeth and the whole of the south side of London, where it is proverbially bad—the supply being taken from the worst parts of that "common sewer" called the "river Thames?" I saw a plug opened this morning (after the supply had been sent in to the neighbours), and the water for some minutes was as black as the water of a foul cesspool: it will be no wonder if we soon hear of cholera in that neighbourhood. There seems to be great neglect somewhere, that a whole session should pass and no remedy adopted, after such a fearful mortality as was experienced in Lambeth last year. R. M.

**GUILDFORD SEWERAGE.**—SIR: It will be remembered by many of your readers that plans were called for by advertisement in your journal of December, 1848, for effectually draining the town of Guildford; and nineteen engineers sent in designs. After several weeks' delay, the commissioners engaged a government surveyor to assist them, and three plans were selected by him (for the commissioners to decide upon) as offering the greatest facilities for carrying out their intended object. Not less than sixteen months have passed over, and the successful competitor is not declared. Unable to settle the sewerage question, they have now a fresh scheme in view, that of erecting baths, having no other means of disposing of their money. Look out, ye competitors for baths and wash-houses, rush down and take the site of ground, send in your design, and you will have the gratification of waiting two or three years for an answer.

#### FAIR PLAY.

**ST. MARGARET'S CHURCH, LEE.**—A new organ of the first class, by Messrs. Bishop and Sons, has been erected in the parish church of Lee, near Blackheath. The case executed has been from a design by Mr. John Brown, the architect of the church (erected in 1841), by Messrs. Vincent and Burrell, Norwich: the decorations by Mr. St. Quintin.

**WIDE ESTIMATING.**—The following is another pretty specimen of estimating, for schools and school-house, Boughton Monchelsea, Kent, Messrs. W. G. and E. Habershon, Architects, who supplied the quantities:—

Tomlin, Leeds .....	£1143 0 0
Town, Boughton .....	755 0 0
Sutton and Walter, Maidstone ..	742 0 0
Thompson, Loose .....	700 0 0
Walker and Soper, London ....	689 0 0
Holloway, Maidstone .....	670 0 0
Assiter .....	660 0 0
Shadgate, Boughton .....	590 0 0

#### AN UNSUCCESSFUL COMPETITOR.

#### TENDERS

For two houses for Messrs. Adcock, Princes-street, Oxford-street; Mr. Meakin, architect.

Lee .....	£3,680
Piper .....	3,478
Maudsley .....	3,300
Howard and Nixon .....	3,133
Lawrence .....	3,068
Haynes and Co. ....	2,905
Trego .....	2,944

For a congregational church, Caledonian-road, Holloway; Mr. A. Trimen, architect.

Grimsdell .....	£2,412
Tombs .....	2,708
Haynes and Co. ....	2,708
Curtis .....	2,731
Piper .....	2,724
Mallet .....	2,715
Dove .....	2,700
Trego .....	2,687
Mycers .....	2,488
Carter and Ellis .....	2,436

For training schools, Whitelands, Chelsea; Mr. H. Clutton, architect.

Curtis .....	£8,432
J. Aisou .....	8,280
Carter and Ellis .....	7,973
Grimsdell .....	7,830
Kelk .....	7,760
Locke and Nesham .....	7,676
Holland .....	7,584
Piper .....	7,565
Wilson .....	7,423
Trego .....	7,268











# The Builder.

No. CCCXCVI.

SATURDAY, SEPTEMBER 7, 1850.

**T**HE area in Hyde-park for the proposed International Exhibition of 1851, is wholly enclosed by a hoarding, so constructed as not to injure by a nail the boards that compose it, and which are probably to form the floor of the intended structure: there are no castings yet on the ground, but temporary offices and sheds have been erected, and everything seems ready for a fair start when the materials arrive. The hoarding, we may mention by the way, is formed thus:—two battens, about an inch and a half apart, are fixed upright in the ground at regular distances: between these,  $1\frac{1}{2}$ -inch deals are laid edge upon edge, the ends being clipped by the battens; and the top of the latter being fastened together by a piece of iron hooping, the whole is made firm and secure.

We have now the pleasure to lay before our readers a perspective view of the building as it will appear seen from the south-west, a ground-plan of the structure, showing its general divisions, with position of the proposed gallery (shaded dark), and a geometrical elevation of the transept.\*

Our readers may compare them with the illustrations we published of the design originally issued by the Building Committee.† The plan is a parallelogram, 1848 feet long and 408 feet wide, with an addition on the north side, 936 feet long and 48 feet wide. The height is 66 feet. Nearly midway, 900 feet to the centre, on west side, and 948 feet on the east, a transept is formed, with a semi-circular roof, 108 feet high from the ground, to enclose a group of trees. This further serves to break the long line of the side elevation, and marks out the central entrance. There is another principal entrance at each end. The main parallelogram is formed into 11 divisions longitudinally, alternately 24 feet and 48 feet wide, with the exception of the great central walk, which is 72 feet broad. There are three large refreshment courts. The area on the ground-floor is 752,832 square feet: the area of the galleries included in the contract, and the position of which is marked on the plan by a dark tint, is 102,528 square feet, making a total of 855,360 feet. Other galleries may be introduced if needed, at an extra cost, affording an additional available area of 90,432 square feet.‡

As materials for consideration, we may here mention that the space demanded by the metropolitan districts, up to August 1st, is 27,774 square feet of floor or table, and 24,243 square feet of wall space. For Manchester, it is said, 10,000 square feet have been guaranteed. America has accepted 80,000 square feet.

On either side of the central entrance are the pay-places, rooms for the Royal Commissioners, the committee, clerks, &c. At the east and west entrances are pay-places and clerks' rooms.

The construction is of iron and glass: but externally, for enclosure, some wood is used. The iron columns are placed 24 feet apart, and in

each space between these, externally, are two wooden columns of the same size. Of cast-iron girders, we are told, there are 2,244 for supporting galleries and roofs; 1,128 intermediate bearers; 358 wrought-iron trusses for supporting roof; 3,230 columns; 34 miles of gutters for carrying water to the columns, which are hollow, and serve as water pipes; 202 miles of sash bars, (?) and 900,000 superficial feet of glass.\* Some of these particulars differ from those given by Mr. Paxton in his remarks at Bakewell (see p. 403, ante), but are, we believe, correct.

The spaces between the columns next the ground, and elsewhere, are fitted with moveable louvre-plates, of iron, for ventilation.

The roof, also of glass and iron, consists of a series of ridges and valleys, 8 feet span, running transversely, so that there is a valley at

the head of each column. As we have elsewhere mentioned, Mr. Paxton contemplates covering the greater part of the building with canvas, to be watered in hot weather.

We do not see where the steam-engine is to be placed: vibration must, of course, be guarded against.

The amount of the contract by Messrs. Fox and Henderson for the use and waste of the materials employed in the building, is 79,800*l.*, the whole building to become the property of the contractors, and to be removed by them. If, on the contrary, the building be permanently retained, the cost of it will be 150,000*l.*†

With reference to some flourishes that are being indulged in as to the execution of the work, and the arrangement that the whole building is to be covered in by January 1st, we would say that when the structure is finished and the promise kept it will be quite early enough to glorify the speed and praise the execution. The powerful family influence which was exerted in favour of the present design, the great injustice done by its acceptance to the architects and engineers who gave their time and thought to the work in reply to the commissioners' invitation, and the way in which the arrangement was entered into with the contractors for the execution of it without competition, lead us to view the rising structure with less confidence and less pleasant feelings than we should otherwise have gladly hastened to express.

## A FEW GROPINGS IN PRACTICAL ACOUSTICS.‡

As there is much not only in the building, but in the auditory, to influence hearing, so is there also much in the speakers themselves: as the conformation of the ear may be more or less favourable for the reception of sound, so that of the mouth probably is favourable or otherwise for giving it distinct utterance, according as it may throw the voice in a mass against the readiest reverberating surfaces, or allow it at once to scatter, and so lose much of its propulsive effect. Those who possess the mysterious gift of volubility are not always favoured with the clearest enunciation; and there are many who show themselves satisfied with the bare fact of speaking, and have no care for the comfort of those who have to listen: such persons would cause detraction

\* Messrs. Chance, of Birmingham, are, we believe, to supply the glass.

† The *Advertiser* says—"As already explained, the exhibiting surface will occupy a space of about 21 acres. The total cubic contents of the building will be 33,000,000 feet. The total amount of contract for use, waste, and maintenance is 79,800*l.*—or very little more than nine-sixteenths of a penny per foot cube. The total value of the building, were it to be permanently retained, would be 150,000*l.* or rather less than one penny and one-twelfth of a penny per foot cube."

‡ See page 411 ante.

to any building as regards its sounding properties.

We use the term *reflection* of sound; but that, we apprehend, is a phenomenon which is very rare, since it is the sound of the substance impinged upon which is awakened, and not simply a reverberation or echo of the sound whose pulsations excited it: were this not the case such propagation of sound might be less objectionable; but the tone and quality of the original sound being liable to infelicitous accompaniments, its prevention becomes a desideratum. It will be found that every apartment has its key-note to which a speaker must pitch his voice aright ere he can speak or be heard with comfort; and, as in musical instruments, so, we should suppose, in buildings, they must be attuned by use before their acoustic properties can be established. The wave-like vibrations of the air, produced by sound, are in number and velocity according to the pitch of the tone, those from low notes being slower and fewer than those from high ones; consequently the sound in the former is not carried so far; to be heard properly, therefore, it is necessary that *force* be combined with *pitch* in the voice in order to adapt it to a large apartment; and hence it may be found that some who have become accustomed to speak in an apartment of a given size cannot all at once adjust their voice to, or discover the pitch of, one that is of larger dimensions.

In church-building, we have known the sloping sides of a high-pitched, open-timbered roof prove very favourable to hearing; yet this roof was open to the ridge, and the space overhead was consequently great: had the sound proved deficient, a ceiling laid upon the collar-beams, about two-thirds up, would have been advisable. In the same church, the galleries projected some three feet from the beams which carried them, and a portion of the soffit was sloped parallel with the roof: this slope was also considered advantageous to the hearing. What conducted farther to success, was the circumstance that in a shallow, arched recess (or chancel) behind the pulpit, the back, instead of being at right angles with the axial line of the church, formed at the centre a very obtuse re-entrant angle, having thus two slopes affording very favourable surfaces for returning the backward rays of sound. Thus much for form. The wall-plastering was immediately on the masonry, without battens and lathing; consequently there was no absorption or passage of sound there: the proportion which the plain walls bore to the windows was also considerable, these being narrow and few; so that the loss by these was reduced to a minimum.

The sounding-board over a pulpit or rostrum serves at once to prevent loss of sound through excessive height of ceiling, and to direct it towards the auditory: it has been employed with great success, in form of the quarter of an oblong spheroid, placed so that the situation of the speaker's mouth corresponded nearly to the focus: with the concavity arching upwards, the open end in front, and the axis elevated forwards, the necessary effect was that the rays which impinged on it were scattered forth, and prevented being dissipated either above or behind: a similar portion of a paraboloid is equally suitable: a niche, segmental in plan, and semicircular-headed, struck from the position of the speaker, would be likely to afford a useful result. In the old stone-canopied seats on Westminster Bridge, the slightest whisper in one could be heard in that opposite it: from recollection, these did not form opposite ends of a long ellipse; but they might have done so with additional effect—the foci in the line of the inner side of the parapets.

The Isacoustic-curve, or curve of equal-hearing, of Mr. Jno. Scott Russell, presents an ingenious sectional arrangement for the sittings of theatres, &c., by which the speaker sees the faces of all his auditors,—they being therefore favourably circumstanced for hearing. We have seen a horizontal figure of equal-hearing,—being an egg-shaped diagram, showing the relative distances at which a speaker could be heard with equal distinctness,—in front—at either side—and in rear,—he being supposed to be speaking straight-forward: we think the distances were 70, 35, and 25 feet, but cannot recall it with certainty: it can, of course, be easily determined by experiment.

\* See pp. 426 & 427.

† See pp. 277 & 282, ante.

‡ The areas are computed to centre of columns.



Theatres must be considered the most favourable for affording the opportunity of employing acoustical forms; since, although the performers may be many, the space within which they have to appear is limited: to their walls, ceilings, and seating, therefore, may severally be given those curvatures and angles which are known to be most conducive to the agreeable reception of sound by an audience. Much of the success, however, will always depend on the arrangement of the stage and proscenium: these, together, may be compared to a great speaking-trumpet—its tube, the stage, requiring to be close round the sides, and widening to the mouth; and the latter, or proscenium, having such a splay all round as at once to receive the sounds well from the stage, and give them out well to the house. The stage is usually sloped, about one-quarter of an inch to the foot, but varying according as the pit is relatively high or low: the sight is usually what determines this; but sound must also be considered as having a claim in the arrangement. The sides are usually open, divided by the wings: here, when a performer is speaking, back from the sphere of action of the proscenium, much of his voice is lost to the audience; and hence, when a deep scene is set, it ought to have, at all the wing openings (and not necessarily visible), what, in stage parlance, are denominated *tormentors*, namely, wings placed so as to enclose the stage like an apartment: \* the same applies to the fly openings overhead. When a soliloquy has to be spoken, or a solo sung, the performer advances towards the foot-lights, when the difference, to the hearing, is usually very remarkable.

The business of the prompter might be facilitated by the introduction of a speaking-tube leading from the "prompt" side to the o.p., or "opposite prompt" side, and opening there with a wide trumpet-mouth, at a convenient level for the performers at that side to hear it: and, in very wide stages, where it is usual for the prompter to be placed in the centre, beside the foot-lights, and screened from the audience by an awkward-looking hood, an additional tube, with a similar trumpet-mouth, inclined to the performers at an angle of say 45 degrees, might obviate the necessity for the prompter being so placed, and afford him the means of communicating with the performers placed at either side and in the centre. By the use of such "prompt-tubes" the tendency of the performers to place themselves so as to face the prompter, so disadvantageous to those of the audience who happen to be seated at the o.p. side of the house, would be obviated. (*En parenthese*, speaking-tubes are not employed to anything like the extent to which they might be with advantage. How much time and fatigue would be saved if the necessity in private houses were done away with, of ringing for, and bringing a servant up perhaps two or three pairs of stairs, to receive orders which another journey is necessary to execute. In building new houses this should be looked to; and it is rendered the more simple and economical since Whishaw's invention of the Telekophon, or whistle-mouth-piece, has superseded the accompaniment of the bell, which was formerly in most cases necessary.)

The ancients are understood to have placed empty vases or pots in the walls of their theatres, forums, &c. in order to concentrate sound at particular points: such a course might probably be adopted with advantage in concert-rooms,—reverberations not being so objectionable in music as in oratory; and it would be likely to enhance the effect if tubes, or continuous rods of straight-grained wood, were laid as conductors from the place of performance to each concavity. Were theatres intended for musical performances only, a niche, in form the segment of a sphere, might be sunk in the back of every box in each tier, so as, by concentrated reverberation to give to the music a presence in the most extreme distances within the house. The following circumstance, related by Dr. Arnott, may be quoted in support:—One day, on board a ship sailing along the coast of Brazil, but far out of sight of land, the persons walking the deck, when passing a particular spot, heard distinctly, during an hour or two, the sound of bells, varying as in

human rejoicings: months afterwards, it was ascertained that at the time of observation the bells of the city of St. Salvador, about 100 miles distant, had been rung on the occasion of a festival; and, favoured by a gentle wind, the last, or at least to the human ear, the inaudible vibrations of the sound had been conveyed thus far, and been concentrated to a focus by the concavity of a sail, and rendered sensible to the hearing.

It is not intended that the substance of this paper shall be much more than suggestive,—inducing thought, and prompting discussion, on a somewhat neglected, but very important and equally interesting subject; one which should be considered essential amongst structural arrangements. A few remarks as to the mode of applying materials may not, however, be amiss. Considering it convenient, then, to regard sound as a fluid, it is obvious that smooth surfaces, such as well-polished plastering on walls, will best permit it to glide or rebound along on its way; and be least permeable, or liable to absorb it, or permit its outward passage; also, that if such surfaces be formed directly on the solid, without any space between, the chance of such escape will be rendered extremely small: on the other hand if the wall-plastering be coarse, open-grained, and coated upon lathing, having a space between it and the masonry, the surface will be comparatively absorbent and non-reflecting. The same will apply to wood-fittings. Should the voice not be so powerful as to be heard with ease in the more remote corners, the transmissive power of wood-fittings (of which the fibres lie in the right direction) may be made advantageously available, if they are so arranged as to part in the proper place with the sound which they convey, and not so as to conduct it outside; while by jointing, panelling, &c., with a material which shall break the continuity of the wood, much of its tendency to carry off sound will be counteracted; and by filling up the space behind it in like manner, its absorbency will be also reduced: for the former purpose, vulcanized india-rubber might prove serviceable, and for the latter, hemp-waste or sawdust.\* In ceilings, where the laths separated from the joists with strips of felt; and in floors, where the boards separated from the joists with the same material, it would probably be found advantageous. Precautions of these kinds apply to all surfaces, whether vertical or horizontal. In continuation, were everything avoided which we knew was calculated to interfere with a uniform diffusion of sound, or which was liable to confuse it with echoes and resoundings;—were ventilation efficient, and so arranged as not to carry sound away;—were harmony in form and colour accomplished, so as that no obtrusive objects should engage the eye to the neglect of the ear;—were windows made double to exclude street din, and prevented from rattling; doors to shut against felt rebates, hinges and latches well soaped, floors matted—not bare and covered with grit;—were these, and much more, both negative and positive, which each new case would suggest, systematically put in practice, benefit would accrue which would compensate for both the trouble and cost.

#### ON THE ARCHITECTURE OF FURNESS ABBEY.

##### CLASSIFICATION OF STYLES—CISTERCIAN ABBEYS.

THE history of English architecture may be divided into seven distinct periods, of the earliest of which the remains are so few and left in such a fragmental condition that its comparative illustration is impossible. One principal division of Church Architecture has been recognised and adopted by all who have written on the subject; that, namely, which separates ecclesiastical buildings into two classes; in the first or earlier of which the circular arch was exclusively employed, and in the second or latter the pointed arch alone was used. To the former of these the term Romanesque has been given, and to the latter the term Gothic. This division is so simple, and at the same time so strongly

marked, that without entering into a discussion as to the propriety of the terms themselves, but contenting ourselves with the fact that they are already in general use, we can have little hesitation in accepting this primary division as the groundwork of our system. At the same time it is manifest that, for purposes of detailed description, it is not sufficiently minute, and that a further subdivision is necessary. It is also clear that it excludes a large class of buildings that were erected during the period which intervened between the first appearance of the pointed arch, and the final disappearance of the circular arch; and of which the church of Furness Abbey is a valuable example. As regards the buildings of the Romanesque period, no subdivision of them can be more satisfactory than that which has already been for some time in use, and which divides them into those that were built before and after the Conquest, and designates them accordingly Saxon and Norman. As regards the buildings of that intermediate period just mentioned, to none can the term transitional be so aptly applied as to those which were erected under influences created by that remarkable contest between great antagonistic principles, which, after having been carried on for nearly half a century, terminated in a complete revolution in the style of building at the close of the twelfth century. Lastly, as regards the Gothic period, no sub-division of it appears to be so natural and convenient as that which is suggested by the four principal changes of form through which the window passed from the thirteenth to the fifteenth centuries. These changes have been illustrated by me in a work on Decorated Windows, published last year. For half a century or more after the disappearance of the circular arch, the window appeared under a form, which, from its general resemblance to a lancet in its length, breadth, and principal proportions, rather than from any uniform acuteness in the shape of its head, led to the universal application of that term to the windows of the period. This observation applies equally to the window, whether used singly, or in groups of two, three, five, or seven; and equally also to the later as to the earlier examples of the period. It is proposed, therefore, to denominate this the lancet period of Gothic architecture. Out of the practice of combining a plurality of lancets under one arch, or hood moulding, and of piercing the solid spaces that intervened between the heads of these lancets and the under side of this arch, a novel and beautiful discovery arose. This was the invention of tracery, by the adoption of which a group of several lancets under one arch was converted into a single window of several lights. For nearly three-quarters of a century after its introduction, the tracery of windows contained forms in which that simplest of all geometrical figures, the circle, was principally conspicuous; and although in the latter part of this period the circle does not obtain the same prominent place in the centre of the window, that is generally allotted to it in the earlier examples, yet the important part that it bears in the construction of the design of even the whole of their later examples, fully justifies the application of this term, already in pretty general use to this class of windows, and entitles us accordingly to call this period, by the same rule, after that figure, and, *par excellence*, the geometrical period. At the close of this period, a feature began to make its way into the subordinate parts of the tracery, which had already shown itself for some time previously in the mouldings, and which eventually exercised a most important influence on the architecture of the next half-century. This feature was the curve which mathematicians call the curve of contraflexure, and which is known amongst architecturalists as the ogee. The flowing nature of this curve imparted to the tracery a grace and an ease which the rigid outline of the circle denied it, and affords us a strong point of contrast whereby to distinguish the architecture of the two periods. The sinuosity of form which characterises the tracery, pervades also the mouldings, the carved work, and all the details of this period, and enables us to designate it appropriately as "The curvilinear period." In the latter part of this period a horizontal bar or transom as it is called, is occasionally found, crossing the mullions at right angles in the lower part of the

\* So called by the performers, from the difficulty they present to these at the wings in watching the progress of the performance.

\* A church in Aberdeen, the plastering on the walls of which was upon lathing, having proved very defective as regards hearing, the experiment was tried, with success, of (having stripped off the plaster) introducing into the hollow behind the lathing, between the battens, a firm body of the first of these latter materials.



window. Whether this bar was introduced for the purpose of strengthening the mullions, or for the sake of proportion, it speedily grew into frequent use. At the same time also vertical lines presented themselves occasionally in the tracery; a new principle, in fact, had made its appearance, which rapidly overran not only the windows and their tracery, but the doorways, the arcades, and every part of the building. The straight line, when once introduced, quickly superseded the curved line; square panels covered the walls, angularity of form pervaded even the mouldings and minor details, and to the round finish the square edge was preferred. This was the last of the four periods of Gothic architecture.

ROMANESQUE.			
		A.D.	Yrs.
I. Saxon Period from	1066	1066 prevailed	
II. Norman	1066	1115	79
GOTHIC.			
III. Transitional	1145	1190	45
IV. Lancet	1190	1245	55
V. Geometrical	1245	1315	70
VI. Curvilinear	1315	1360	45
VII. Rectilinear	1360	1650	190

It is time now that we should turn our attention to Furness Abbey. Before, however, describing its present remains, it will be necessary that I should first describe to you what the usual buildings of a conventual establishment were, and more particularly those of the order to which the abbey belongs, namely, the Cistercian order. It is not unnatural to suppose that, differing as the several monastic orders did in their habits, rules, and modes of life, some indications of this difference should find their way into the architecture of their buildings. It is many years since my attention was first directed to what appeared to be the peculiarities in the architecture of the churches of the Cistercian order of monks, and having subsequently had opportunities of visiting a considerable number of the abbeys of that order both abroad and in England, I was enabled to come to the conclusion that a uniformity in the design of the buildings of that order prevailed throughout Europe, which, if it was not the result of positive regulation, was, to say the least of it, very remarkable and worthy of record. As the value of any such discovery would appear to be materially enhanced by the further discovery of any documentary or historical evidence bearing upon the point, I spared no pains in obtaining access to the early chronicles and records of the Cistercian order. In the course of this enquiry, rendered less easy from the difficulty of meeting with any of the authentic histories of the order in this country, I ascertained the important fact, that the rules which were drawn up by the early Cistercian abbots in the infancy of their order, and which were enlarged and confirmed at subsequent but still early periods, contained directions relating not only to the discipline and mode of life to be followed within the walls, but also to the choice of site, and to the architecture and form of their buildings, as well as to the degree and nature of their ornament and internal decoration. As the whole of these directions are borne out and confirmed by all the examples with which I am acquainted,—as there appears, indeed, to be scarcely a single case in which a variation from these rules occurred within the first two centuries of the existence of the order,—I conceive that so interesting a fact, established as it would appear to be by the concurrent testimony afforded by the internal evidence of the buildings themselves, and the external evidence of contemporaneous historical record, and unnoticed as I believe it hitherto to have been, is worthy of particular mention and illustration. This is not the time and place for entering into the proof of what I have asserted; but as Furness Abbey corresponds in many of these particulars with all the other large abbeys of this order, I will mention a few of them. And, first, as regards the site of a Cistercian abbey: it was ordained that they should never be built in towns, or even in hamlets, but in secluded valleys, remote from the haunts of men. All who remember any of our principal Cistercian abbeys will notice how strictly this rule is complied with,—they generally lie high up the valley, often in the narrowest part; and they appear to have usually cleared out the bottom of the valley for pasturage and cultivation, leaving the sides clothed with wood. Any one who has approached this abbey from Dalton, must have noticed how truly Cistercian

this approach is. I need scarcely mention Fountains, Rievaulx, and Tintern in support of this rule, which is most stringently complied with in France and Germany; and although in England situations of this kind would be in some parts difficult to meet with, yet I know of no instance in which the rule has been departed from, or the valley deserted for the high land.—(Monasticon Cisterciense, p. 246, gen. chap. A.D. 1134, Cap. I.) Next as regards the church. They prohibited every thing that had a vaunting ambitious character. Thus towers, which abounded in the abbey churches of the Benedictines, were eschewed by the Cistercians. They permitted, indeed, a low tower at the intersection of the arms of the cross, or over the crossing, as it was called, rising one stage only above the building, but nowhere else; and the tower we now see at the west end of Furness Abbey Church stands like that at the end of the north transept of Fountains, a monument of the degeneracy, so to speak, of the order, and an example of their departure in the sixteenth century from the rules they had laid down and observed in the twelfth and thirteenth. The churches were invariably dedicated to the Virgin Mary, and to her alone. They were nearly all uniform in plan, built without exception in the form of the cross, having a nave with side aisles, north and south transepts, and choir, and having also three small chapels, forming a sort of eastern aisle to the transepts, but separated from one another commonly by a partition wall.

I now come to a very important point of their regulations: they permitted no sculptures of figures, or of the human form, no images, no carvings save that of the crucifix, no pictures, no gold ornaments, no stained glass, that is to say, of a pictorial character, and no prostration in their churches. Now, although the period in which these rules were strictly carried out was possibly short, yet there is not one of their churches of early date upon which great severity of treatment is not plainly stamped: for example, I have searched in vain for such sculptures as are here prohibited in many of the Cistercian churches of the twelfth and thirteenth centuries, whilst contemporaneous buildings of Benedictine origin abound with such carvings. Take, for example, the nearly contemporaneous buildings of Rievaulx and Whitby, situated within thirty miles of one another: in the one you will find grotesque figures, heads, and the utmost profusion of carved ornaments; in the other, extreme simplicity in these respects, numerous elegant mouldings, but no sculpture, no heads, no figures. So also in the chancel of Furness Abbey, you will find an almost entire absence of sculptured ornament, and the effect made dependent upon excellent proportion and purity of design, along with great varieties of detail. So far as regards the church, the conventual buildings were laid out with the same regularity and uniformity: of these the principal were,—1. The Chapter House, where all the business of the convent was transacted. 2. The Common Refectory and Day-room of the Monks. 3. The Kitchen. 4. The Principal Refectory. 5. The Hospitium, or Guest House. These were the most important buildings of a Cistercian monastery. There were others of less importance which I shall notice by and by; but these were always disposed round the quadrangle of the cloister in certain fixed situations, and we always know where to look for them in a ruined convent. The Chapter House point always adjoined the south transept of the church, a small apartment used as a sacristy alone intervening: it was usually the building most ornamented next the church. Next the Chapter House came a passage leading from the cloisters, and offices at the back. Next the passage came the Common Refectory, or Day-room of the Monks, a building generally of more plain character than the rest, and which extended beyond the length of the cloister to some distance, according to the number of inmates. Now, you will perhaps think that I have been describing the actual remains of Furness Abbey; the truth being that I have been describing upon the plan of what actually remains at Furness, the conventual arrangement of almost all the Cistercian abbeys with which I am acquainted. In fact, the plan

of Furness is the exact counterpart of a plan which I made of the Cistercian abbey of Brombach, on the Maine, in Franconia. I will now point out which parts are still in actual existence at Furness Abbey, and which have been restored according to the approved model; and in doing so I will at the same time state their style and probable date, referring each portion to its proper period. And first in point of importance, as well as of date, comes the conventual church. The convent having been founded in the year of our Lord 1129, some time usually and naturally elapsed before the proper steps could be taken, the designs matured, and the funds collected for commencing a work of this kind; indeed, in most cases, these preliminary preparations appear to have consumed almost as much time as the building of the church itself. Judging from the style of the work, I should be disposed to say, that the church could not have been commenced before 1160. It belongs therefore to the earlier part of the Transitional period, and seems to have been entirely completed according to the original design. I have already stated, that in the earlier part of this period a remarkable rule was uniformly observed in the discrimination exercised in the use of the two forms of arch, the circular and the pointed. Here we have an excellent example of the observance of this rule, although the building was erected close upon the time when the use of the two forms of arches became indiscriminate. In this church, however, the whole of the arches of construction are pointed, and the whole of the arches of decoration are circular. There is another feature which strongly marks the exact date of this building, the use of a peculiar capital, entirely confined to this period: it consists, as usual, of a square block hollowed down to the circular shaft, the bell or neck of which is inclosed in a plain leaf, having a curled end at each corner of the capital resembling a volute. The mouldings have precisely that profile we are accustomed to look for in works of this precise date; and the same may be said of the form of the piers, which are alternately cylindrical in groups of eight. The choir is the only part of the building that has been materially altered; for although the insertion of windows of the Rectilinear period in many parts of the remains has to an inexperienced eye greatly affected the apparent character and style of the building, yet the practised archaeologist will readily recognise these interpolations. In the choir, however, a great change was made in the fifteenth century, the extreme end being taken down, and the building extended considerably towards the east: this work, which includes an originally fine east window, now gone, two lofty side windows, and some elaborate and beautiful sedilia, belongs entirely to the Rectilinear period. Passing now into the south transept, we first recognise the accustomed flight of stairs which led from the dormitory of the monks to the church, which they made use of at their different hours of service during the night, and ascending these we shall find ourselves close to the scriptorium, or library, over the Chapter House; and, advancing still further, we shall find ourselves in the dormitory—that is, we should have done, had there been a floor, which there is not: we must therefore be content to restore the vaulting of the common refectory, on which that floor rested, in imagination, and descend at once into the cloister quadrangle. We first come to the Chapter House, which we approach through a fine vestibule, having a circular archway for its entrance, on each side of which are two similar circular arches, one opening to the sacristy, and the other to a vaulted apartment very commonly found in this situation, and which, till we find a better destination for it, we will call a penitential cell, which I believe is what it was. The Chapter House and vestibule belong to the very best time of the Lancet period, and are very elegant specimens of this work. We next come to the common refectory and dormitory over it, which are plainer examples of the same period: still adhering to the cloister quadrangle, and leaving the remains at the end of the common refectory for subsequent examination, we must turn to complete our survey of the quadrangle of this once magnificent series of buildings, with little else left us but speculation and regret. From what we have seen of the size and character of



the common refectory, we cannot doubt but the principal refectory must have been in a style of unusual magnificence, and the hospitiary, running from the south side of the church in a southerly direction, must have been of unusual extent; indeed, the foundations of both buildings, which were distinctly traced out at my instance, by Mr. Beck, the careful and diligent historian of this district, prove this beyond a doubt: all that remains either of them or the cloisters themselves, are the few remains of the hospitiary attached to the south wall of the church, consisting of the shafts and part of the capitals of the vaulting.

EDMUND SHARPE.

#### LIGHT, AIR, AND WATER OF THE POOR.

PUBLIC attention has been steadfastly fixed on the sanitary condition of the humbler classes, and inquiries have been directed into the haunts of poverty, which are but too frequently the purlieus of filth. Possibly the origin of this movement is not deducible from that pure benevolence which is founded on the basis of Christian charity, and is rather owing to that tendency to self-preservation which is the instinct of nature, seeing that the recent scourge of the cholera has stimulated the sympathies of the higher classes to a more active regard for the cleanliness, comfort, and health of their toiling neighbours. Whatever the motive may be, the object and end are good, and if the scourge of epidemic persuade men to a more elevated mode of life, to the practice of fraternal amenities, and to the amelioration of the mass of mankind, it boots not to inquire too scrupulously.

Before the lethiferous year of contagion, who thought of prying into the by-lanes, courts, and alleys of the metropolis, or what philanthropist deviated from the Courty courts—the parks, squares, and broadways of fashionable rectitude?

It has now become fashionable to be amongst eleemosynary committees, and it is well it is so, for the lot of suffering and long-neglected humanity is like to profit by this new and well-timed bias of aristocratic feeling or affectation.

The first thought of awakened terror was the wish to furnish every abode of the destitute with a sufficiency of water, the second to provide sewerage, and the third, better regulated apartments.

Several model lodging-houses have been also established, and on this theme, some two years back, I furnished THE BUILDER with remarks on their ventilation and arrangement. Since then five or six have been established, and in these some 2,000 or 3,000 of the more independent of artisans, mechanics, and labourers (*calibates*) have been and are accommodated. This is a step in advance, and, no doubt, will in time, by the teaching of example, greatly improve the mode of construction in erecting houses for the poor; but what is the amount of benefit conferred on the existing swollen population of the slums of London, or what proportion does this section of 3,000 souls bear to the 800,000 who yet pine in indigence, squalor, pestilence, and darkness in the rookeries within every district of the bills of mortality.

Much parade has been made by sewer authorities of their drainage, much by the water companies of the increased flow of water; but there are in every quarter of the town, city, and suburbs crowded dwellings where there is as yet no sewerage, and in which the privies exhale miasma sufficient to originate again, in sultry weather, and in certain stagnant conditions of the atmosphere, pestilence as lethiferous as that from which, under Providence, we have been yet preserved.

I will not particularize neighbourhoods, for it might be invidious and prejudicial to the interests of householders, where, lately, no one could walk without being disgusted by the emanations from sewers or reservoirs; but I will undertake to lead a sanitary commissioner, or any subordinate who may be delegated to accompany me, through any parish in London, and to convince him by the most forcible evidence, by an appeal to his senses (those of smell, eye, and of taste), that foul and tainted air, the origin of all epidemics, is at large and poisoning the breath of life: for several days last week it was palpable in most

parts of the town, and even in open and opulent suburbs, where, on the stagnant air, a heavy reek of pestilence issued from the constricted lanes, doing the work of contagion.

This comes from the numerous open privies, in a heavy sickening vapour, which, for want of buoyancy rolls along the surface and extends far beyond the region of its generation.

In confined rooms, occupied each on an average by three persons, the effect of stunted oxygen is visible in the wan features and gaunt frames of the inmates, who, in addition to this visitation, have to endure a short allowance of light through one window (without any back current or ventilation), and generally a scant supply of bad water: the wooden tubs in which this last is meted, being devoid of waste pipes, are conservative of epidemia and filth: thus the three most vital elements—light, air, and water—are withheld from that class of the community which most needs their refreshing influence, when retired to fiful rest after a day of toil.

It often occurred to me that the maudlin sympathies of platform orators when treating of the sanitary question savoured strongly of rose-water and Persian carpets. Noble Lords who have only heard of such privations, speak poetically of the benefits of model lodging-houses: let them visit the lairs of want, and carry sanitary reform into practical utility: let them ameliorate those evils where they have long existed—in the poor man's home, be it chamber or cottage. A noble sympathiser, on inspecting the hovel of an Irish labourer in St. Giles's, asked if he did not filter his water—"An' sure, yer honour," replied Paddy, "the company supplies it ready filtered from the Thames: the childer don't drink it anyhow, and I might as well take to the pump as axe the turncock to draw it mild: maybe it's whisky it wants!" His Lordship took the hint.

In France the President of the republic has taken up the plan of improving the dwellings of the poor. Our Commissioners are well-paid for their office, and should actively attend to the speedy redress of these wide-spread evils. Perhaps it might be "*infra dig.*" to personally inspect immundities: if so, some operative should be enjoined to do the offices of visitation and inspection. The Roman who sought official honours was made *Edile*, or public scavenger in derision; he, however, accepted the post, conferred in contempt, and made the office important and respectable by the expurgation of Rome.

Defective sewerage is the first evil, bad and scant water the second, insufficient light and ventilation the third; these demand speedy correction. The expense will be amply requited in the increased energies of the producing classes, the care and trouble in the improved health of the community.

QUONDAM.

#### NOTES OF BUILDING WORKS IN IRELAND.

A NEW church has just been completed at Sidney-parade, Dublin, on the estate and at the cost of the Honourable Sidney Herbert. The total dimensions are 98 feet 2 inches long, by 46 feet 6 inches wide; height to level of wall-plate of aisles 15 feet, to ridge of roof 22 feet, to level of wall-plate of clerestory 28 feet 6 inches, to ridge of roof 42 feet. On the western elevation is a tower 16 feet 6 inches square, and 75 feet high, with a circular turret, attached at the angle, 2 feet 8 inches diameter, and 37 feet high, perforated with semi-circular headed openings to admit light. A winding staircase, leading to the organ loft, is constructed therein. In this front is the entrance to nave, by a semi-circular headed ope 4 feet wide, 7 feet 6 inches high, with clustered Norman columns, and cut stone dressings. Above this is a gable perforated with a central window 11 feet 6 inches high, by 2 feet 6 inches wide, with intersecting Norman arches springing from columns at each side. The large tower, which is decorated in a similar manner, is surmounted by a conical stone roof 14 feet 9 inches high, having grotesque figures at the angles. The flanks are perforated with five circular-headed windows, with cut stone dressings; those of aisles 6 feet high, by 2 feet wide, with a similar arrangement in clerestory. On the east elevation is the

chancel 25 feet 3 inches long, by 17 feet wide, with a semi-circular absis 17 feet diameter. This absis has five windows and buttresses similar to those on flanks,—height to level of wall-plate 22 feet 6 inches, to ridge of roof 37 feet. The walls of the church are 2 feet thick, built of angular granite rubble; all the dressings throughout are of Caen stone. Total cost, 6,000*l.* Mr. Ferrey, of London, is the architect. Mr. Darby, of Dublin, architect, superintended erection. Mr. George Farrell, builder. Style early Norman.

The directors of the Bank of Ireland are receiving tenders for the erection of a branch Bank at Maryborough, according to drawings by Mr. Halpin, architect. Cost to be about 1,600*l.*

The Poor-law Commissioners are about erecting a new work-house at Glyn, county of Limerick, according to plans by their architect, Mr. George Wilkinson, and have advertised for tenders for same.

There is a new mart erecting at Drogheda, the designs having been furnished by Mr. Wm. F. Calbeck, architect. The style is Italian; the cost, 2,000*l.*

A new Roman Catholic Chapel is in progress of erection at James-street, Dublin. The plan is rectangular: length of nave to chancel, 130 feet, by 60 feet wide. A plinth, 3 feet 6 inches high, surrounds the building. The front elevation has three entrances, with windows over centre door 6 feet wide, and 14 feet high, to soffit of arch; side doors 5 feet wide, 13 feet high, with label mouldings, clustered columns, and foliated caps; centre window, 7 feet 6 inches wide, 23 feet high; side windows, 4 feet 6 inches by 15 feet 6 inches; height to castellated parapet of tower, 111 feet 6 inches. From this level rises a spire 86 feet high, double angle buttresses at each side of tower, 4 feet 6 inches wide, with crocketed pinnacles, rising 19 feet above castellated parapet. The side elevation is perforated with nine lancet windows, with label mouldings in clerestory, and eight in aisles. The buttresses between clerestory windows are pinnaced; those of aisles plain angular-headed. The chancel is 18 feet 7 inches by 28 feet 5 inches; has a window 15 feet wide, 34 feet high, and five bays, with tracery. Height to level of wall-plate—of aisles, 28 feet; to ridge of roof, 35 feet; to level of wall-plate of roof over nave, 53 feet 6 inches; to ridge, 65 feet; walls, 2 feet 9 inches thick. The side aisles are separated from nave by a series of lancet arches, springing from clustered columns, having foliated caps. Between the lower story and clerestory is a triforium: the ceiling to be groined and bossed. All the principal windows to be decorated with stained glass. Rear and side elevations are punched and drafted; front, sparrow picked; dressings of Tullamore limestone. This chapel has been designed to accommodate 2,500 persons: is being erected by voluntary contributions and bequests. The roof over nave is being laid; tower is at present carried up to a height of 70 feet. Total cost will be 20,000*l.* Style, Gothic of the Middle period. Mr. P. Byrne, architect; Messrs. Meares and M'Kay, builders.

The Alliance Gas Company are erecting extensive stores at Sir John Rogerson's quay, consisting of retort-house, coal stores, &c.; cost will be about 3,000*l.* Mr. Byrne is the architect.

*Viaduct over the Boyne.*—The works on the Dundalk and Belfast Junction Railway line are progressing rapidly. The viaduct over the Boyne has been in course of erection since January last, but it will take about eighteen months to complete it. By this viaduct, which is of enormous strength and extent, the railway crosses the defile. On each side the embankments are of considerable elevation. It will consist of eighteen semi-circular arches, each sixty feet in span, and will rest on seventeen piers exclusive of the abutments. Those piers are of a very strong description. They are all founded on solid rock, some of them, and the north abutment, at a depth of thirty to forty feet below the surface of the earth. They are constructed of blocks of granite (rock ashlar work), from a ton to two tons weight each, and of the hardest and densest quality; they have an appearance of great strength and stability. The height of the arches over the ravine will be 140 feet above the bottom, and in addition to this there will be a strong stone parapet about 4 feet high. The lowest arch will be about



70 feet above the surface of the earth. The extreme length of the viaduct will be about 1,400 feet. The largest piers rise up from the bottom and sides of the ravine. The works are contracted for by Messrs. Killen and Moore. There is nothing in Ireland to be compared to it for size.

## NOTES IN THE PROVINCES.

THE Leicester Improvement Committee are about to have the Exchange at Leicester taken down, and the buttry and poultry market-house, planned by Messrs. Flint and Wicks, of Leicester, architects, erected. All Saints church, Thurlston, has undergone some extensive alterations, and been provided with a large addition to its accommodation by means of uniform open sittings. The east window has been filled with stained glass by Wailes. The entire work has been executed from designs by the late Mr. Stephen Fry, architect.

It is proposed to erect a new church at Eling. Five hundred pounds have been offered to a building-fund by Miss Bourne. Schools are about to be erected at the New Forest union workhouse, Hants.—The Cirencester theatre has been sold by auction for 350*l*. It was built by tontine in 1796, and produced Incledon. It is now to be converted into a brew-house.—The foundation-stone of the intended infirmary and dispensary at Torquay was laid on Saturday week.—Nearly 200 new houses are in course of erection at Plymouth, besides those in the suburbs.

The *Liverpool Times* states that fourteen flagstones, each 13 feet by 10, and weighing upwards of five tons, have been brought by canal, from Owm, near Halifax, in Yorkshire, for the east portico of St. George's Hall, where workmen are laying the foundation for the grand flights of steps to constitute the approaches to that end of this noble building. Each stone is about seven inches in thickness, and was with difficulty drawn from St. George's Dock to its final resting-place by three stout horses.—York Cathedral is undergoing inspection, with a view to repairing injuries lately received.—The new Independent church at Scarborough was opened on Tuesday week. It is in the Early Decorated style, with geometrical tracery, and is built of Whitby stone, with quoins and dressings of Cloughdon Moor stone. The roof is covered with green Westmoreland slates. The plan consists of a nave and transepts, with recessed organ gallery behind the pulpit, and tower at the S.W. angle, the stair turret crowned with small leaden spire and gilt vane. The principal entrance is on the south side, by a moulded and crocketed doorway. The principals of the roof rest on carved corbels, springing from internal piers, forming on each side three shallow chapels, each having a three-light window and high pitched gable. There are galleries at south end of nave and east and west transepts, connected by shallow galleries running down the east and west sides, and having carved open front. The woodwork is stained and varnished; the roof, which is open, being coloured ultramarine between the rafters. The north window is to be filled with stained glass by Messrs. Forrest and Burnby of Liverpool.

The church is lighted principally by two gas coronas, pendant from the roof, with stems and bands of ultramarine. The whole has been carried out from designs by Mr. Raffles Brown, of Liverpool, architect: carving executed by Mr. Rossett, of Liverpool. Length within walls ninety feet, breadth between transepts sixty-two feet, breadth of nave thirty-five feet: seats 1,100: cost, exclusive of ground, 3,320*l*.

The National Provincial Bank of England Building at Darlington has been rebuilt, and appears to be rather a stylish sort of edifice for such a place as Darlington. Its site is a conspicuous one in High-row. The exterior is an Astylar composition of the Italian Palazzo style, faced with stone, and consisting of three stories above a sunk basement; the windows of ground-floor are arched, the key-stones being enriched with masks or heads. The windows of chamber story have architraves and enriched cornice, and the attic windows have architraves with slightly curved heads and key-stones. A large and ornate cornice terminates the whole. The architectural department was under the superintendence of Mr. John Middleton, —

The foundation-stone of the new church of Holy Trinity, Hartlepool, was laid on 22nd ult. The style is middle pointed. The plan consists of chancel 36 feet by 21 feet 6 inches, with vestry and organ chamber at north side; nave 84 by 24 feet; north and south aisles, each 84 by 13 feet; and north and south porches. The west wall will be terminated for the present by a bell gable for two bells, and is to admit of a tower being added. The roofs will all be open, those of nave and chancel with collars and curved bodies. The nave and aisles will have open seats of simple character. The pulpit will be a carved one of Caen stone. The chancel is to have oak stalls with panelled fronts and standards with poppy-heads. The church is to accommodate 770 persons, 514 free. Mr. John Middleton, of Darlington, is the architect, and Mr. J. Mathison, of South Shields, the contractor.—The Maryport Gas Light Company have just announced a further reduction in the price of gas at that place from 5*s*. to 4*s*. 2*d*. per 1,000 feet.—St. Margaret's Chapel, Edinburgh Castle, is undergoing some alterations with a view to its restoration. Several of the ancient windows are now opened, and filled with stained glass, the work of Messrs. Ballantine and Allan.—On Friday week an influential meeting has held in Glasgow to promote the erection of an equestrian statue of her Majesty in that city. Alison, the historian, presided, and eloquently descanted on the personal graces of her Majesty's mind and form; observing, also, that, on the erection of the statue, "Glasgow would have the singular felicity of possessing the first equestrian statue of a woman in Great Britain." Twenty subscriptions of 100*l*, each have been readily obtained, and one of 200*l*. Successful endeavours are now being made to obtain smaller sums, several of 50*l*, and under having been already also secured.—The works for super-seeding canal locks in drawing up boats at the Blackhill Locks on the Forth and Clyde Canal have now been brought to a completion, and the new process was put to the test on Saturday in week before last. The result was satisfactory, three boats having been drawn up in less than five minutes, whilst to have made them pass through the locks would have taken fully half an hour.

## CHETHAM COLLEGE, MANCHESTER.

AMONGST the places visited by the Archaeological Association at Manchester was Chetham College, where they were accompanied by Mr. Grogan, and had the advantage of some notes from him on the subject. Humphrey Chetham spent his later years in retirement at his country residence, Clayton Hall. On the 12th of October, 1653, he died, being then in the seventy-third year of his age; and he was buried in the Lady Chapel of the Collegiate Church, now called "The Chetham Chapel." His crowning act was the bequeathing of 7,000*l*. for the purchase of an estate, the proceeds of which were to be devoted for ever to the maintenance and education of forty poor boys, from the age of six to fourteen years; and on leaving the hospital, they were to be apprenticed or otherwise provided for. Another bequest was 1,000*l*. for the purchase of books, and 100*l*. for the purchase of a building to contain them, they being for the free and unrestricted use of the public for ever. A further sum of 2,000*l*. was directed to be devoted to the continual enlargement of the library. The main body of the present building was probably erected during the lifetime of Huntington, the first warden of the college; the money for the purpose having been left by Thomas Lord de la Warre, the founder of the college. Huntington's part of the building comprises the quadrangle and the small staircase at the south-east corner; and Mr. Grogan was inclined to consider the hall and the room adjoining it on the south, as belonging to the earlier building, and to refer them to the time of Henry VI. The later parts of the building consist of the cloister surrounding the quadrangle, with the line of offices extending eastward along the bank of the river Irk, to the gateway; and these seemed to belong to the time of Henry VIII. or certainly not earlier than the end of the reign of Henry VII. The warden and fellows occupied the buildings until 1547 (1st Edward VI.) when the college

was dissolved; they were then conveyed by the king to Lord Derby, whose family retained them until the time of the civil war, when they were seized on behalf of the Parliament; and ultimately purchased by Chetham's executors. The cloister is very peculiar, inasmuch as it has two stories; the only other instance of the kind being at St. Stephen's, in Westminster.

## THE TOWN HALL, SOUTHAMPTON.

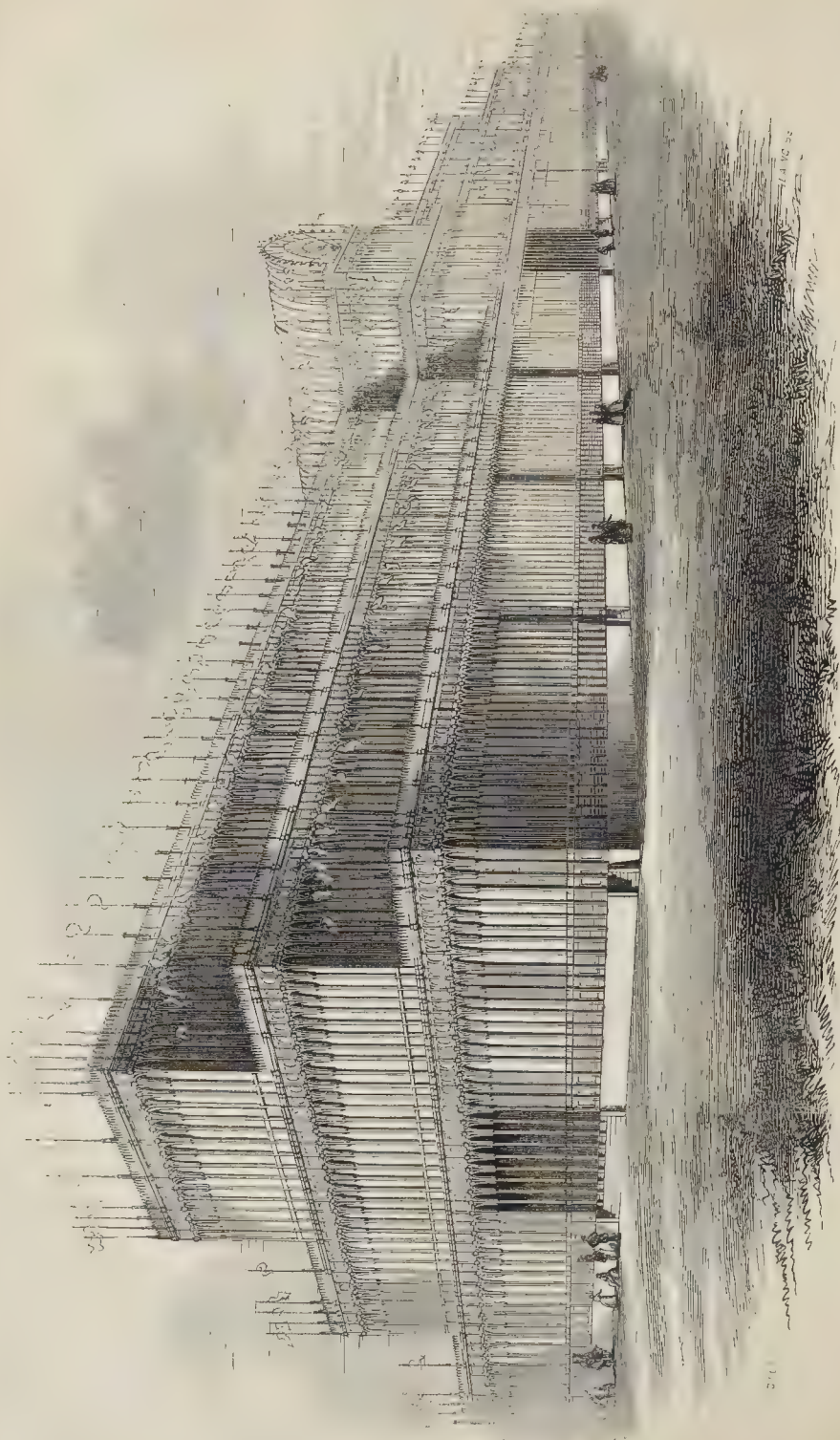
On Monday, 26th ult., all Southampton was in a bustle, for the mayor, Mr. Andrews, one of the hard-headed energetic men of these times, who, without extraneous help, hack, out of life, fortune and honour, entertained the Lord Mayor of London and some distinguished guests. We were not amongst them, and have nothing to say of the feast. The ostensible object of the meeting, however, was to celebrate the opening of the Town Hall, which has been enlarged, and according to one of our correspondents, much improved; and, concerning this, we may give two or three items of information. The Town Hall is situated over the Bar-gate, in the Norman portion of the building. In the 15th century, when the semi-octagonal addition was made on the north front, the tower in the centre of the old gate was removed, and the space thrown into one room, but the outer northern flank of the old gate was left standing, the new work thus forming an additional small chamber, which, in modern times, was much altered, and converted into a grand jury room. Both rooms were inconvenient, low, ill-ventilated, and utterly inadequate for the requirements of such a town as Southampton. All parties felt the inconvenience, and the present mayor called the attention of the council to the subject. Mr. Elliott, architect, was appointed to effect the enlargement, and by removing the dividing wall between the twelfth and fifteenth century portions of the gate, thus forming one spacious chamber, and by building on the west flank an additional room, which is capable of being thrown into the former room, the division between them being formed with folding doors, a chamber is obtained, 74 feet long. A large lantern-light in the sessions room, and a smaller lantern in the grand jury room, give light and air. The roofs or ceilings are framed in timber. The works have been executed in nine weeks, at a cost of 700*l*.

## NEW WORKS BY ART-UNION OF LONDON.

SOME of our London readers must have been amused by the numbers of persons they met last week with a roll and a flat green parcel. These were the works recently issued to the members of the London Art-Union, namely, an engraving by the anaglyptograph from the prize bas relief by Mr. J. Hancock, "The Entry into Jerusalem," and the etchings by Mr. E. Goodall, of the "Seven Ages," after the original designs by Mr. D. MacLise, R.A. There is but one opinion as to the excellence of both works, which, we may notice, are supplementary, the subscribers having previously received "Sabrina" and the "Smile" and the "Frown." About 1,000 copies of each were applied for and received in the two first days of the week, and about 5,000 copies of each delivered simultaneously on the same days all over the country. A delivery of this sort involves more work than some would think. For example: in the week previous to this last issue, 460 parcels were sent off east, west, north, and south, which had occupied two men from eight to six daily for five weeks with the constant superintendence of the assistant secretary. These parcels contained not less than 10,000 prints, 6,000 sets of etchings, 6,000 reports, 7,000 circulars, and many thousands of prospectuses. The paper used for the etchings alone weighed two tons. The Exhibition of Prizes at the Suffolk-street Gallery, now open without tickets, will close on Saturday 7th. We may mention as a piece of news that the council are about to offer a premium of 100*l*. for the best model of a single figure, 20 inches high, to be cast in bronze, and a premium of 50*l*. for the second in merit.

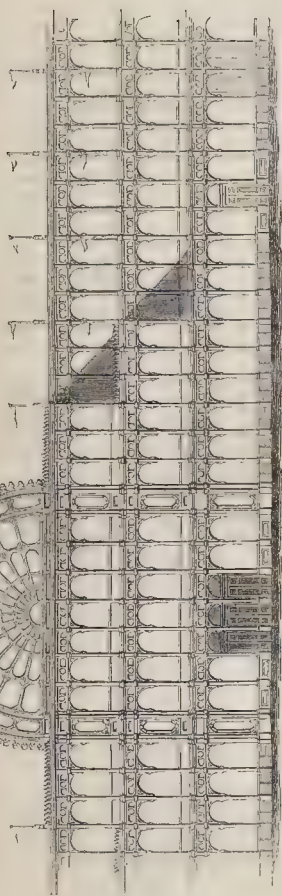
PLANS FOR IMPROVEMENT OF TOWN OF LIVERPOOL.—Sixteen plans have been given in. After the decision of the committee, it is said, they will be open to public inspection.



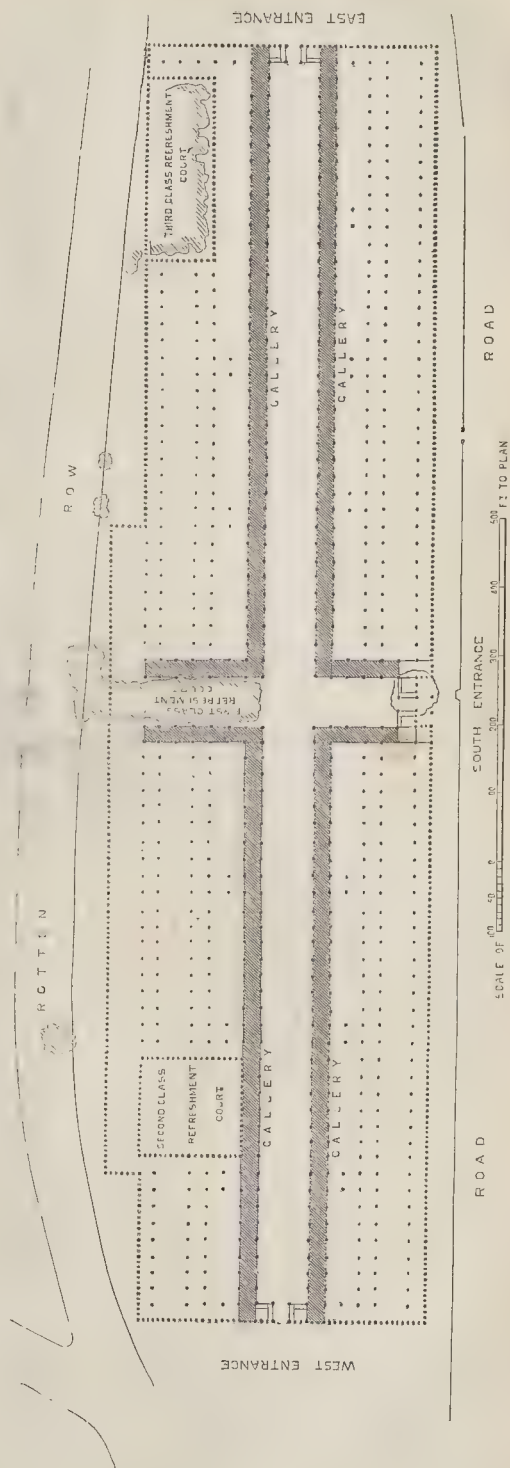


PERSPECTIVE VIEW OF THE PROPOSED BUILDING FOR INTERNATIONAL EXHIBITION.\*  
DESIGNED BY MR. PANTON.





ELEVATION OF TRANSECT.



GROUND PLAN.

[<sup>o</sup> See page 421 in our present number.



## RAILWAY JOTTINGS.

THE opening and naming of "the Royal Border Bridge," at Berwick, by her Majesty and Prince Albert on their progress to the ancient palace of their ancestral family at Edinburgh, may be regarded as the main event in railway progress during the week, and as "the last act of the Union" of England with Scotland and its kingly race, as courtly contractors have archly yet decorously styled it in the flowery language of hyperbole. The construction of the narrow old bridge of James the First's time was a job of twenty-four years' standing, carried out, it is alleged, with the mere interest on the instalments prepaid by the Treasury to the contractors. The present imposing structure was thrown across the Tweed in not much more than as many months, although it contains three times the amount of material and workmanship. The Queen, after viewing the viaduct, was pleased to testify her sense of the eminent scientific skill of the engineer, Mr. Stephenson, by offering him, through Sir George Grey, the honour of knighthood. Mr. Stephenson, no doubt, fully appreciated the honour so gracefully tendered by royalty to science, but gratefully and respectfully declined it.

The length of the viaduct is 2,160 feet, and its greatest height 126 feet 6 inches to top of parapet. It consists of 26 arches, each of 61 feet 6 inches span. The remainder consists of a massive embankment of 700,000 yards of earthwork, describing a curve towards Tweedmouth, and being at some places from sixty to eighty feet high. The material of the viaduct is stone, with brick in cement in the inner part of the arches. In the whole structure there are 1,250,000 cubic feet of masonry, and 2,500,000 bricks. At high water the Tweed is here twenty-three feet deep. The foundations were of a very expensive and difficult character. In the execution of the coffer-dams, Nasmyth's patent steam pile-engine was used, with an engine of fifty-horse power for pumping water out of the dams. Piles have been extensively used, the ground principally being loose sand and gravel. No less than two years were spent in driving the piles and laying the under masonry. The contractor at one time employed 2,000 men in the various departments of his contract. The entire cost of the viaduct, amounting to about 200,000*l.*, has been borne by the York, Newcastle, and Berwick Railway Company.—Mr. John Dobson, the architect of the central station at Newcastle, also opened by the Queen, forwarded to her Majesty, at Castle Howard, a book of five drawings, illustrative of that building.—The site of the new railway bridge over the Wye, says the *Hereford Times*, will be a short distance below the old one, and the staple material will be iron, the piers of iron tube filled up with concrete. The first objects that attract the notice at present are the great and novel works constructed for sinking in the river the cast-iron piers, the foundation of which is upon the solid rock at the bottom of the Wye. The piers on the land side are 6 feet in diameter, and those in the water 8 feet. They are bolted together in sections and will be filled with concrete. On the top of these iron-cased piers will be placed the roadway for carrying the trains of the South Wales Railway over the river to Gloucester; but whether it will be by a tube, or by a partly suspended medium, the spectator has no means of ascertaining. The greatest difficulty in this new construction at Chepstow appears to be from the water pouring so fast into the iron piers that it requires a large steam-engine to pump it up.—A prospectus of the Briton Ferry (Neath) Docks scheme has been issued by the promoters, from which it appears that the total sum required to make the docks and wharfs, according to Mr. Brunel's estimate is 45,000*l.*, of which 10,000*l.* are to be furnished by the Vale of Neath Railway Company, leaving 35,000*l.* to be raised by the parties locally interested in the speculation. The Vale of Neath Railway works are, it is said to be now prosecuted with renewed vigour. In a short time ten miles will be ready for the laying of the permanent way. Mr. G. Hennett, of Bristol, has taken the contract for making the bridges over the Neath canal and Neath river; also for the erection of the viaduct near Cadoxton. It is in contemplation by the proprietors of the Momouth

and Forest of Dean tramroad to convert their line into a locomotive one.—Papers, it is said, have been lodged to file an injunction to prevent the Dover Company from opening the Ashford and Hastings line, on the ground that the line as constructed does not agree with the parliamentary section. On the other hand, an injunction has been obtained, prohibiting the company from paying any more dividend until said line shall have been opened. The company are therefore in a true American "fix."—Government is reported to have made the long-expected grant of 100,000*l.* to the Waterford and Limerick for constructing the line to Waterford.—An iron bridge on the Erie Railway broke down on the 31st July last, under the weight of a train with 113 oxen and some sheep and pigs. Several men were killed, and many of the cattle were horribly gored and massacred. Had the train been one of passengers a scene of dreadful slaughter must have ensued. There is something wonderful in the narrow escapes made by human beings in the still frequent falls of railway works. It is not many days since an equally narrow escape of hundreds occurred at the Bricklayers' Arms station. Iron-work seems to be all going to sticks. Pity it would not, in many instances, fall back into stones and bricks.—A committee of dukes, lords, M.P.s., professional men, and others have taken in hand the realization of a national monument to the late George Stephenson.—Mr. George Carr Glyn, M.P., treasurer, and the secretary to the Institution of Mechanical Engineers at Birmingham, honorary secretary. The committee base their unquestionable hopes of success on Mr. Stephenson's exertions "in connection with the introduction of the safety lamp," as well as on (and, indeed, in precedence to) his "elaboration of the locomotive." But, considering the all-sufficiency of his renown as the elaborator, or, as we long since equivalently designated him, the maturer of the locomotive, it is perhaps a pity that many who have conscientious doubts of his priority of claim to the invention of the safety-lamp should have their desire to honour the locomotive maturer interfered with by a moot question on a point of certainly, in this case, secondary, though in itself still great and decided merit and importance. The success as well as the grandeur and simplicity of the idea of a monument to the creative genius of the iron horse may thus be marred.

## RE-ASSESSMENT OF ST. LUKE'S, CHELSEA.

It is perfectly true, as stated in your paper of last week, that the resolution of the board of guardians for valuing the parish by a paid non-resident surveyor, was carried by a majority of one only (being, I understand, nine to eight); it is also true that the vestry, called and crammed as it was by "discontents," passed a resolution against such appointment by a large majority (117 to 27); but what weight or consideration is to be attached to either the large minority in the one case or to the large majority in the other? I think none.

It should be known that the opponents to the measure both at the board of guardians and at the vestry, are men having considerable property under compound assessment (and, as it is believed to be) below its proper value. These, with others, having property which they dare not, evidently, subject to the impartial hand of a professional man, to be dealt with as the law directs and as the case demands, naturally feel deep interest in opposing such an arrangement, well knowing that he would show no favour to any one, but do full justice to all. Nothing of the sort, it is very easy to imagine, can be done, if the guardians, or as is proposed a committee of the vestry, are to have the re-assessing; and this too, not by visiting and inspecting the property, which is the only right course to be pursued, but by sitting in a room two or three times a week, and then going over the rate-books under the pretence of ascertaining what house is and what house is not correctly assessed: can justice under such circumstances be done? Echo, I think, will answer "impossible." Justice, I am convinced, can only be done by employing, as the guardians propose doing, a parochial and properly paid surveyor. Remonstrances against this, it appears, have been forwarded to the Poor Law Board from the minority of the guardians and from the majority of the vestry; but representations from such quarters will not, I trust, have any influence with the Poor Law Commissioners; they, and they alone, have now to decide the matter, and acting with right judgment, soon I hope to hear that the mandate has been issued forth to the guardians to "re-assess the

parish," which no unprejudiced man, I am sure, will deny will be for the parish benefit.

It is absurd what expedients men sometimes have recourse to to obtain their own ends. In the present case the doctrine laid down by the compounders and their friends is, that none but persons such as themselves are competent to revise the assessment; that two or three years will be required to do it in; that the cost of it will be 3,000*l.* or 4,000*l.*; and next, that the appeals will be endless, and consequently the expense to the parish endless. It is unnecessary to tell you, but it may perhaps not be unnecessary to inform the ratepayers of Chelsea, and the ratepayers of other parishes, who may wish to have their parishes re-assessed, that all this is a wanton imposition on the credulity of those to whom it is addressed. Just the reverse is the case. Competent men can be found who will do the work in eight months or less for the sum of 525*l.*, and the parish guaranteed from all expenses attending any appeals. I enclose my name.

A RATEPAYER OF CHELSEA.

## ST. JAMES'S CHURCH, HOLLOWAY.

SOME works are going on here which would drive a stanch ecclesiologist mad, and certainly can be anything but satisfactory even to those who attach less importance to forms and symbolism, but seek simply for propriety, fitness, and beauty. On looking into the building the other day we at first thought we had got into a huge warehouse, but ultimately determined it was in progress for a concert-room. Two tiers of enormous galleries, beating any of those we know of the worst days of church-building, are being put up; the organ is above the altar, and there is to be a gallery above the organ. We should have expected better things from the large and intelligent population of Holloway. To reproduce in stone, too, such mouldings as those which adorn the classic entrance front is a sad waste of money. The contemplated outlay is about 3,000*l.*

## Books.

*Ploughing by Steam.* By LORD WILLOUGHBY DE ERESBY. Ridgway, Piccadilly.

We do believe that an era of agricultural development, as vast and wonderful as that which the present age has already witnessed in manufactures, is not only within the bounds of possibility, but on the eve of advent,—that a time is at hand when our present primitive agricultural implements will be put away as curiosities beside the distaff and the spinning-wheel,—and that the alleged discovery by Daguerre of a mode of rearing three-year plants in three months,—the reported power of some of our market-gardeners to rear a salad (like a mushroom) in a single night,—the alleged power of the Japanese to dwarf the lofty pine into a miniature tree, a few inches only in height,—the traditional story of the monks of Glastonbury Abbey, who could make the hawthorn bloom at Christmas,—or even the trick of the Indian jugglers, who appear to cause a mango seed to spring up out of the soil in course of a few hours, and before the eyes of hundreds, unfolding leaves and flowers and fruit,—are all but, at the worst, vaticinary imaginings, or rudimental typifying ideas, of actual powers of nature, scarcely less wonderful, and yet to be developed; just as was the old traditional idea of the magnetic telegraph of separated friends, with its needles and alphabets, but without any record of its invisible connecting wire,—alone wanting to reduce it all to credibility.

Believing, at all events, as we decidedly do, that a great era of agricultural development is at hand, when even the steam-plough, as it at present exists, may be a rude implement, it is interesting, in such belief, to witness just such beginnings of this anticipated era, as were the first steam-engines, or the first spinning and weaving machines, in manufacture—or the locomotive with legs, like a horse, in the railway system. The steam-plough may, even yet, be just such an implement, with relation to agriculturists; but certainly, whatever be the upshot, or whatever be the merits of this particular invention, agriculturists are deeply indebted to Lord Willoughby d'Eresby, for his continued endeavours to elevate their position, and improve the means of their peculiar manufactures.

The steam-plough described and illustrated



in the present pamphlet, consists, as his lordship states, of—

"A locomotive engine, weighing  $3\frac{1}{2}$  tons, and of 26-horse power, designed by Mr. Gooch. It has a double capstan attached. The engine moves across the centre of the field on a light portable railway. The ploughs advance and recede on either side of the railway, at right angles to it. The plough employed consists of four ordinary, and the like number of subsoil ploughs, fixed in a frame; it is directed by a person standing upon a small platform. Two such ploughs, one on either side of the railway, alternately advance and recede; the advancing plough working, the other idle until it regains its proper position for ploughing the next four furrows. The ploughs are attached to an endless chain, 150 yards in length. Provision is made in case they strike against any impediment. Such a machine would perform the work usually done by 16 ploughs, driven by as many men, and drawn by 32 horses. It would save the labour of 31 horses and eight men; and yet, in saving labour, would, as machinery always does, provide additional means of productive employment.

*An Introduction to the Study of Gothic Architecture.* Oxford and London: J. H. Parker. Those who desire to get without trouble a general idea of the progress of Gothic architecture will find this little book useful. It was originally written as part of a series of elementary lectures, recommended by the committee of the Oxford Architectural Society to be delivered to the junior members of the society in 1849, and being thought useful, Mr. Parker was requested to publish it. It is largely illustrated and nicely printed. The last chapter is on French Gothic, and its comparative progress, a subject which well deserves to be further investigated. Some of the French antiquaries have thrown difficulties in the way by claiming for their buildings much earlier date than can be justified. It would seem, however, that they are now admitting their error.

*Review of Report of General Board of Health on Metropolitan Water Supply.* By S. C. HOMERSHAM, C.E. Weale, High Holborn. This is virtually a pleading against the Board of Health Report and in favour of the Watford Scheme for collecting water from the chalk strata through springs above the level of London: indeed, the review is in the form of a report to the directors of that scheme. It contains a good deal of interesting matter, however, and we are glad to see that the rain-water scheme of the Board of Health appears to have at least strengthened the disposition of the supporters of other schemes to adopt efficient means of softening, and, where necessary, purifying the hard-water of the metropolitan districts. To this end, the process contemplated by Mr. Homersham, as engineer of the Watford Scheme, is one also recommended by the Board of Health, and generally received with favour, namely, Professor Clark's, of Aberdeen. "The Watford spring-water," he says, "as explained in my report to you dated January last, may be reduced by Clark's process (from 18 degrees and upwards according to Dr. Lyon Playfair) to  $3\frac{1}{2}$  degrees of hardness, and without having pledged you to carry out this process [they ought to be pledged to adopt some process, however] provision was made in the plans deposited in November, 1849, to procure an advantageous site for erecting works necessary for that purpose, and ever since last autumn I have been in communication with Professor Clark." &c. The process in question, as our readers may remember, consists simply in the precipitation of the hardening bicarbonate of lime by the addition of quick lime which converts it into insoluble carbonate of lime, at the same time defecating the water from animal and vegetable impurities.

We agree with Mr. Homersham in believing that "the introduction by a new company of a pure, soft, and cheap water, distributed on the system of constant supply, would immediately force the established companies also to soften and purify their waters, or to resort to better resources, to lower their charges, and to adopt the continuous supply, with an expedition and completeness that would startle."

Having already given place to points of objection to the Board of Health's scheme, as discussed in the Institute of Architects, and elsewhere spoken of the Watford scheme, we will not occupy more space at present on a

subject which will doubtless turn up again at a more fitting time.

### Miscellaneous.

THE ELECTRO-TELEGRAPHIC UNION OF BRITAIN AND FRANCE has been signed and sealed. On Wednesday in last week, at 9 P.M., the great fact was practically established. The *Goliath* steam-ship had then "payed out" the line of wire from Dover to Cape Grisez, and mutual congratulations were immediately passed between the two nations. "The real calm of peace between them," says the *Journal des Débats*, "is the protecting pipe which has just been laid across the channel, preserving the wire of the telegraph." Of this said pipe, however, which, as we see from a piece of it placed in our hands, is of gutta percha, and of considerable thickness, well laid on, we can only say that we hope the peace will not be broken when "the pipe is out." We are still of opinion that gutta percha is not likely to be a permanent insulator in sea-water and among the fishy tribes. But that it is a perfect insulator in the meantime cannot be doubted, and it may be so for some considerable period. As it is, "the jest or scheme of yesterday, has become the fact of to-day." Let this never be forgotten when we feel inclined to ridicule some new idea which may seem to be as preposterous to many as this one once did.—We regret to observe, since writing this paragraph, that although the line, as reported down to yesterday morning, seems to have remained entire across the whole width of the Channel, at Cape Grisez the wash of the sea amongst the rocks on Wednesday last destroyed a leaden protector laid on there to the wire, and has broken the latter itself: iron is to be substituted; and should the one wire answer, it is intended to have others in reserve in case of such accidents.

BALLOON RAILWAYS.—Major Browne, of Great Portland-street, has addressed a letter to the merchants and bankers of Liverpool, proposing the establishment of a balloon railway across the great desert of Africa. He suggests the establishment of a terminus near Morocco, whence he would lay 1,000 or 1,500 miles of single rails into the desert. The rails are for the guidance of the balloons, which are to carry fifteen persons each. An immense and lucrative trade with the interior, the major conceives, would be carried on by this means. He offers to exhibit his models free of expense. The major's balloons, like our more primitive shipping, would of course be dependent on the wind, and liable to be wind-bound at inconvenient seasons, however smoothly all might go with the rails in the desert. It seems to us rather singular, by the way, that no one but ourselves appears to perceive that the most feasible chance of realising a practical system of ballooning would be by imitating nature as far as possible. Now, although the structure of birds, with their great development of air cells and other advantages, be such that their surplus weight is small compared with their power, we never find a bird without such surplus weight to be overcome by actual working power, and that so persistently, that without the continued, or at least the occasional, exercise of such power, it will to a certainty fall to the ground. Why not apply such a principle to ballooning, then? Use gas to diminish the weight of apparatus, but never to buoy it altogether up and carry it away: leave always a little surplus weight as a point of resistance to be overcome by working power alone. Whether such a power be yet sufficiently attainable is another question.

UNNECESSARY SCAFFOLDING.—On passing the west end of Hyde Park-gardens a day or two since my attention was directed to what builders please to call a splendid piece of scaffolding, and if it were designed to support tons instead of cwts. it might have some claim to merit; but to erect such a forest of wood merely for the purpose of supporting a few men while cleaning and painting the outside of a house is, in my eyes, a marvellous piece of absurdity, independently of the tax upon the occupier, who is compelled to pay extravagantly for unnecessary work; and the sooner this absurd practice of scaffolding for such purposes is abolished the better. A few well-placed ladders to support a light stage

for the men to work on would answer all the purpose; for instance, secure one ladder horizontally upon the parapet or upper wall of the house, and attach the ends of two erect ladders to it, some 15 or 20 feet apart, the heels being secured to the ground. A light skeleton stage of wood about 20 feet by  $3\frac{1}{2}$  would in about 3 feet high with coarse canvas, for the men to work in, might then be suspended by two tackle-falls from the upper ends of the erect ladders, at a sufficient distance to clear the cornices and other projections, which with guys properly arranged to direct and steady the stage, the men could work much better and more securely than they possibly can by the present cumbersome and expensive mode of scaffolding.—ONE WHO HAS PAID FOR USELESS SCAFFOLDING.

WORKS OF LOUIS PHILIPPE.—Speaking of the death of Louis Philippe, the *Athenæum* says:—"The establishment of a museum at Versailles, though a work not done altogether in good taste,—the great public buildings which he erected, or completed, in Paris,—and the monuments of the past which he took under his charge, with a lively sense of their beauty and importance,—constitute his claim to a notice in our columns. Paris represents three of her rulers conspicuously in her streets.—Louis XIV., Napoleon, and Louis Philippe. The age of Charles II. is hardly more apparent in the City of London than is the influence of Louis Philippe in the squares and open spaces of Paris. He was fond of art. The Spanish school attached to the Louvre was of his formation; and the Standish Collection—a gift from a countryman of our own—was made by him as accessible to the people of France as if it had been given to the nation and not to an individual. When we look at the buildings in London erected under the influence of George IV., and compare them with those in Paris erected under the influence of Louis Philippe, we feel the insignificance of the Guelph and the comparative grandeur of the Bourbon.

EXTERNAL DECORATIONS.—A bookselling firm in New York, U.S., who are about erecting a new store, have commissioned Mr. Brown, an American sculptor, to execute a large bas-relief in bronze, as an ornament for the front of the building.

SALES OF HOUSE AND OTHER PROPERTY. Messrs. Farebrother, Clark, and Lye, lately sold, amongst other property, a freehold house and shop, No. 37, Blackfriars-road, let at 90l. per annum, for 1,490l.; No. 38, let at 100l. per annum, for 1,670l.; No. 39, let at 92l. 10s. per annum, for 1,550l.; No. 43, let at 98l. per annum, for 1,290l.; a leasehold house, held for twenty-one years, in Gloucester-place, New-road, 375l.; a ditto, No. 4, Fitzroy-street, held for a short term, 270l.; freehold residence, known as Oak Lodge, Southgate, Middlesex, with sixty-seven acres of pasture and arable land, for 7,060l.; a leasehold estate at Mile-end, held for fifty-two years (by the mortgagee), for 6,660l.; Whitton Wharf, with house and limekiln, and eight acres of land, 1,500l.; a water corn-mill, working three pair of stones, the Mill Inn public-house, and thirty-eight acres of land, for 2,590l.

CHARING-CROSS BRIDGE COMPANY.—The last half-yearly report states that the tolls for half-year ending 31st July, amounted to 3,118l. 11s. 7d., being less by 110l. 8s. 4d. than for corresponding period of previous year. There was a sum available for dividend to the amount of 1,337l. 14s. The claim of the Hungerford Market Company, amounting to 500l., had been amicably settled, and the balance due to Mr. Chadwick, for the erection of the bridge and approaches, having been certified to be 3,396l., the directors have satisfied this claim. The directors have communicated with the South-Western Railway directors, to secure their co-operation in carrying out the project for the new street between the York and Belvidere-roads. By the present mode of lighting the bridge a saving of 50l. per annum is effected.

COMPLETION OF THE ARTESIAN SALTS-SPRING AT KISSENGEN.—Dr. Granville announces in the *Times*, that this great and tedious work has at length been so far completed that, on 12th instant, a jet was exhibited, springing with immense force to the height of 58 feet from a depth of 1,878 $\frac{1}{2}$  feet of bore, and spreading out like a palm-tree from a column of four inches in diameter. The stratum



of rock-salt whence the jet flows, is supposed to be 1,000 feet thick, and the brine has been found to hold no less than 27½ per cent. of salt. The water as it issues from the surface has a temperature of 66 deg. Fahrenheit, and is delivered at the rate of 100 cubic feet a minute. The ejecting force is said to be a source of carbonic acid gas met with at a depth of 1,680 feet from the surface. The perforation is to be sunk 30 feet deeper, and the well completed at the end of this year. The annual produce of salt from this source is to be limited to 6,000,000 lbs., which, after deducting 60,000 florins for expenses, will add to the Bavarian crown revenue, at current prices, 300,000 florins. The whole cost of this great Artesian work will amount to 80,000 florins (6,666l.). It was begun in the shaft of an old well called the Schönbörn, in 1832, and during 11 years, 800 feet only were bored. But in 1843 Inspector Joseph Knorr advised the government to resume operations, which have never since been interrupted, day or night, till now.

**THE SCOTTISH NATIONAL GALLERY.**—On the 30th ult. his Royal Highness Prince Albert laid the foundation stone of the new edifice to be erected on the mound at Edinburgh, in the midst of an immense concourse of people, who thronged the hill sides and open spaces in one continuous amphitheatre from Holyrood to the Prince's-street-gardens, in the midst of which the mound rises. After the ceremony, the Prince, in a speech wherein he made graceful allusion to the influence and importance of the fine arts, said that it was gratifying to find that part of the funds available for the support of this undertaking should be the ancient grant which, at the union of the two kingdoms, was secured towards the encouragement of the fisheries and manufactures of Scotland, as it afforded a most pleasing proof that these important branches of industry have arrived at that stage of manhood and prosperity that—no longer requiring the aid of a fostering Government—they can maintain themselves independently, relying upon their own vigour and activity, and can now in their turn lend assistance and support to their younger and weaker sisters, the fine arts. The history of this grant exhibits to us the picture of a most healthy national progress: the rudimentary arts connected with the necessities of life first gaining strength; then education and science supervening and directing further exertions; and, lastly, the arts, which only adorn life, becoming longed for by a prosperous and educated people.

**ST. STEPHEN'S, WALBROOK.**—The repairs are about to be commenced, we hope effectively. The picture by B. West is taken down to be placed in the north transept—and a window is to be opened over the other. It is expected the grocers' company will present one of stained glass. The carved work has been placed in the hands of Mr. Rogers. The organ gallery will be enriched similarly to that of St. Mary-at-Hill. Over the altar is to be placed a new cornice, in keeping with the style of the church, and enriched with carvings of fruit and flowers. The architect is Mr. Turner; the builder, Mr. Young.

**RATING SMALL TENEMENTS.**—By an Act now in force (13 and 14 Victoria, cap. 99), passed on the 14th instant, for the better assessing and collecting the poor and highway rates in respect of small tenements, it is provided that vestries are to determine whether 6l. tenements shall be rated to the owners instead of the occupiers, and when thus rated the owners are to be rated on a reduced scale. The goods of the occupiers are to be liable for the rates as well as the goods of the owners. Municipal privileges are not to be taken away from occupiers by rating the owners, but owners of tenements held for longer periods than from year to year are entitled to add the rent to the amount paid for rates. The Act extends only to England and Wales.

**CASTING METAL FLANGES ON GLASS TUBES.**—In a patent recently taken out, Mr. William Mayo, of Silver-street, Wood-street, Cheapside, manufacturer, claims the casting of metal joints on tubes or pipes of earthenware, to connect such tubes, or for the connection of such tubes to plates or surfaces of glass and earthenware, or for connecting to each other such plates or surfaces of glass and earthenware.—*Mech. Mag.*

**THE SQUARE AND CURVE.**—Professor Rangabe states (see *THE BUILDER*, p. 404) that, "Of all those lines whose magnificent harmony is the source of the inimitable beauty of the Parthenon, there is not one which is a straight line." He says this is strictly observed throughout; thus, closely following the order of nature, which avoids a straight line. Permit me to ask, is there no straight line in the triangular pediments of the east and west fronts, which are, or were, so richly embellished with exquisite sculptures? "J. B. W." (see p. 400) says, that architecture is in a great degree unnatural, as it copies no type in nature exactly. This is literally true, for it is purely a human invention. I grant that it may sometimes imitate the routine of nature with good effect, but to follow her closely throughout appears to be neither practicable nor desirable. The great charm of architecture is its contrast to nature; and much of its beauty consists in squareness and uniformity.—*LAFIS.*

\* \* The curvature alluded to by Professor Rangabe was to obtain squareness in effect, which straight lines would not have given.

**DRAWING COPIES.**—A cheap graduated series of drawing-copies on landscape subjects, by Mr. F. W. Hulme, has just now been published by the National Society for Promoting the Education of the Poor, and will be found very useful for schools. Mr. Hulme's skill as a landscape draughtsman is so well known, that it is unnecessary for us to say these copies are drawn with a free bold hand, and are just what they should be. A fourth part should be added, to carry the student on one step further.

**BOSTON, U.S.**—Major Bigelow, brother-in-law of Mr. Lawrence, the American minister here, and at present mayor of Boston, has contributed a sum of 1,000 dollars to that city in aid of the establishment of a free public library there. A committee is about to carry the purpose of the mayor into effect, several other influential and wealthy persons having promised to co-operate. The hon. Governor Edward Everett, himself a former minister to the court of St. James's, has tendered his collection of public documents and state papers to the Boston city government. According to the local *Daily Advertiser*, it amounts to about 1000 volumes, and contains every thing material from the foundation of the Government down to 1825, and is tolerably complete to 1840. Governor Everett suggests that if the Government provide a suitable building, it would be so amply supplied from time to time by donations, that only a moderate annual appropriation for books would be wanted. The people would regard it as their own creation, and take a pride in its increase.

**BEDFORDSHIRE AND ST. ALBAN'S ARCHÆOLOGICAL AND ARCHITECTURAL SOCIETIES.**—On Tuesday week these societies met at Dunstable, Mr. H. Brandreth in the chair, when Mr. G. Somers Clarke read a paper on the "Architecture and History of Dunstable Church, to which we may revert. Mr. Berghie then read one on "Local Tokens," and the Rev. H. Rose another on the "Architectural Designs on Ancient Coins." One of the barrows on the Downs was examined, but nothing was found of any importance, and it was concluded that it was not of Roman, but of British origin, and of an earlier period than that in which the former held the island.

**PROGRESSIVE SOCIETY OF LIVERPOOL JOINERS.**—On Tuesday week this Society held a public meeting in the Concert-hall, for the purpose of developing the objects of the Society, and enlisting additional support in its favour. There was a very numerous attendance. The chair was occupied by the mayor.

**THE PUBLIC LIBRARIES AND MUSEUMS ACT,** which has passed the Legislature, repeals the Act passed five years ago, for encouraging the establishment of museums in large towns; and makes it lawful for the mayor, on the request of the town council of any municipal borough (with a population exceeding 10,000 at the last census), to ascertain whether the Act shall be adopted for such borough. Two-thirds of the borough voters, for or against the halfpenny rate, &c., rule the question. If the boroughes on the poll should determine against the adoption of the Act, it is not to be again proposed within two years.

**PRESIDENCY OF THE ROYAL ACADEMY.**—The lamented decease of Sir Martin Archer Shee leaves the presidency of the Royal Academy open, and various speculations have been made as to his successor. As, however, they are but speculations, and a very few days will decide the matter, we avoid giving currency to them.

**PENNY MAPS.**—To place a series of useful maps really within the reach of the working man, Messrs. Chapman and Hall have commenced an issue at a penny each, to comprise, when completed, about 100 maps, which will admit of all the most important countries being given on enlarged scales. The first part contains Denmark, Hungary, East and West, Holland, and Belgium; the second gives England, north and south, Scotland and Ireland. Clearness is the great thing to be aimed at, and seems here fairly attained.

**REMOVING A CHURCH AT LIVERPOOL.**—In consequence of the enlargement of the London and North-Western Railway Company's station, the church for the blind, formerly situated in Lord Nelson-street, has been removed carefully, piece by piece, from its previous "location," and is now being rebuilt, exactly in its former style and size, by Messrs. S. and J. Holme. Each piece of stone is carefully marked previous to removal; and, in a few weeks, the frequenters of this popular religious edifice will see it in its new situation, opposite the Philharmonic Hall, without a single stone, or even piece of timber, added or taken away. The interior, also, will present no change. The sight of a comparatively old and weather-beaten church gradually rising from the ground, surrounded by so many new and handsome public edifices, is not only novel, but, we believe, perfectly unique in the annals of the building trade. [Not so very novel: a church was lately removed at Edinburgh in the same way.] It was the first public building at which Mr. Samuel Holme worked, and he intends placing the last brick in its proper place with his own hands. The new asylum for the blind, which stands close to the church, is also fast approaching completion.—*Albion.*

**NEWSPAPER CORRESPONDENCE.**—Editors, publishers, and correspondents of newspapers in the United States have now the privilege of using the post-office professionally free of charge for correspondence.

**"CHRISTIAN" ARCHITECTURE.**—To maintain that Gothic architecture is essentially Christian architecture is preposterous. The Gothic did not even generally prevail at any period of the history of Christianity; it appeared only a thousand years after the establishment of the Church by the state, and it never flourished in Asia, in Africa, in the east of Europe, or in Italy or Sicily; it is therefore a comparatively late style, and was spread over a small portion of Christendom only,—a few hundred miles east and west of the Rhine, and in England. In point of time also its duration was short; it did not survive four centuries, whereas other styles have not only been more widely spread in Christendom, but have endured longer, so that neither in point of space nor time can Gothic be termed "Christian Architecture." The great mass of Christian churches have been Roman, Byzantine, Lombard, Norman, Moorish, Italian, or classical: for the first twelve hundred years, Romanesque, and subsequently, shared by Gothic with the Italian and classical.—*Art Journal.*

**WIDE AGAIN.**—Mr. Editor, pray give the following list of tenders for alterations in Pullen's-row, Islington, which were delivered on the 23rd instant. Mr. Wright, architect. It is rather startling:—

Hughes	..	..	..	..	£938	0	0
Deacon	..	..	..	..	830	0	0
Nash	..	..	..	..	785	0	0
W. Hill and Co.	..	..	..	..	779	0	0
Elston and Son	..	..	..	..	760	0	0
W. M. Hill and Son	..	..	..	..	740	0	0
Kesteven	..	..	..	..	498	15	0

H. H.

Observe the following tenders for a new church at Edgbaston, Warwickshire. Mr. S. S. Teulon, Architect. Quantities not furnished:—

Cooper (Derby)	..	..	..	..	£5,904
Briggs (Birmingham)	..	..	..	..	5,540
Branson and Gwyther (Birmingham)	..	..	..	..	5,100
Smith (ditto)	..	..	..	..	4,900
Roebuck (Laceyby) (accepted, I believe)	..	..	..	..	3,691

SENEX.



Deities: Dry (vs. meter, 40,000 in use. A.D. the apparatus can be applied for all heating purposes.



**FIRE STONE**, of superior quality and at reduced prices, from a new quarry, close to the Reigate station.—Apply to Mr. CARRUTHERS, Builder, Reigate.

**BATH STONE OF BEST QUALITY.**  
**RANDELL AND SAUNDERS,**  
QUARRYMEN AND STONE MERCHANTS,  
BATH.

List of prices, also sent for transit to any part of the kingdom, furnished on application.

**MARKET WHARE, REGENT'S-PARK.**  
BASIN.—MARTIN and WOOD select the attention of Builders, Masons, and others, to their stock of Portland, York, and Bath Stone, and other choice stone of Portland, Plaster, Bricks, Tiles, Laths, Fire-bricks, Firestone, &c., sold at the lowest possible prices, for the Trade and the Public.  
Ladders, Stairs, Landings, &c., cut to order on the shortest notice. Tarpaulins laid on hire. A Stock of Northern Bricks, First Symonds, &c., always on hand. Mortar, Lime, and all the best materials for the Trade, and will also be received at Market Whare, Regent's Park House.

**BATH STONE.—RANDELL AND SAUNDERS,** Quartermen, Bath, have appointed MARTIN and WOOD their sole agents in London. A. and W. beg to inform Architects, Masons, Builders, &c., that a large assortment of the best Bath Stone is now on hand, and will be delivered to any part of the Kingdom, at the lowest possible prices. The Bath Stone is now on hand, and will be delivered to any part of the Kingdom, at the lowest possible prices. The Bath Stone is now on hand, and will be delivered to any part of the Kingdom, at the lowest possible prices.

**BATH STONE DEPOT, Great Western Railway Station, Paddington.—EDWARD PLESTER** respectfully informs Builders, Masons, and others, that he is now enabled to supply the Bath Stone and other choice stone of Portland, Plaster, Bricks, Tiles, Laths, Fire-bricks, Firestone, &c., sold at the lowest possible prices, for the Trade and the Public. The Bath Stone is now on hand, and will be delivered to any part of the Kingdom, at the lowest possible prices.

**BATH AND BOX WEATHER STONE.**  
HENRY STONE, QUARRYMEN AND STONE MERCHANTS, Bath, have appointed MARTIN and WOOD their sole agents in London. A. and W. beg to inform Architects, Masons, Builders, &c., that a large assortment of the best Bath Stone is now on hand, and will be delivered to any part of the Kingdom, at the lowest possible prices. The Bath Stone is now on hand, and will be delivered to any part of the Kingdom, at the lowest possible prices.

**CAEN STONE, SELECTED FOR EXTERNAL WORKS.—LAWD, BEDFORD AND CO.,** Quarry Proprietors and Importers from Alexandria. ADRIAN STONE, Builders, Masons, and others, that he is now enabled to supply the Caen Stone and other choice stone of Portland, Plaster, Bricks, Tiles, Laths, Fire-bricks, Firestone, &c., sold at the lowest possible prices, for the Trade and the Public. The Caen Stone is now on hand, and will be delivered to any part of the Kingdom, at the lowest possible prices.

**CAEN STONE.—P. FOUCARD, Quai des** Chateaux, Paris, has appointed MARTIN and WOOD their sole agents in London. A. and W. beg to inform Architects, Masons, Builders, &c., that a large assortment of the best Caen Stone is now on hand, and will be delivered to any part of the Kingdom, at the lowest possible prices. The Caen Stone is now on hand, and will be delivered to any part of the Kingdom, at the lowest possible prices.

**STIRLING'S BELVEDERE SLATE** WORKS, Belvedere-road, Lambeth.—A reduced list of prices of the best BELVEDERE SLATE, placed by the late Mr. Stirling, is now on hand, and will be delivered to any part of the Kingdom, at the lowest possible prices. The Belvedere Slate is now on hand, and will be delivered to any part of the Kingdom, at the lowest possible prices.

**THE PIMICO SLATE WORKS.**  
Patented by Royal Warrant, the Heads of the Nobility, the Clergy, Architects, Builders, Masons, and others, that he is now enabled to supply the Pimico Slate and other choice stone of Portland, Plaster, Bricks, Tiles, Laths, Fire-bricks, Firestone, &c., sold at the lowest possible prices, for the Trade and the Public. The Pimico Slate is now on hand, and will be delivered to any part of the Kingdom, at the lowest possible prices.

**BROCATTELLO MARBLE.—A fine parcel** of this rare and valuable marble has just been imported in bulk, and will be delivered to any part of the Kingdom, at the lowest possible prices. The Brocatello Marble is now on hand, and will be delivered to any part of the Kingdom, at the lowest possible prices.

**MARBLE.—TO MASONS, SCULPTORS,** AND OTHERS.—The cheapest and best assortment of all kinds of Marble, cut to order, at the lowest possible prices, for the Trade and the Public. The Marble is now on hand, and will be delivered to any part of the Kingdom, at the lowest possible prices.

**VEINED MARBLE.—TO MASONS,** BUILDERS, &c.—NOW ON SALE, at the Marble and Wood Sawing Shop, Commercial-road, Finsbury, at the lowest possible prices, for the Trade and the Public. The Veined Marble is now on hand, and will be delivered to any part of the Kingdom, at the lowest possible prices.

**REDUCED PRICE OF MARBLE SLAB.**  
THE LONDON MARBLE AND STONE WORKING COMPANY continue to sell Slabs of superior quality and well worn, at their Manufactory, ENGLISH-WARE, near Millbank, Westminster, at the following reduced prices, viz.:—  
1 inch, at 1s. 6d. per foot.  
2 inch, at 1s. 6d. per foot.  
3 inch, at 1s. 6d. per foot.

**SAMUEL CUNDY, Mason and Builder,** has appointed MARTIN and WOOD their sole agents in London. A. and W. beg to inform Architects, Masons, Builders, &c., that a large assortment of the best Bath Stone is now on hand, and will be delivered to any part of the Kingdom, at the lowest possible prices. The Bath Stone is now on hand, and will be delivered to any part of the Kingdom, at the lowest possible prices.

**GOthic WINDOWS, ALTAR SCREENS, and other Works** produced at a remarkably cheap rate. FURNISHING, &c., on view of the Early English, Decorated, and Perpendicular styles. ALTAIR TABLES, Illuminated. FURNISHING, &c., on view of the Early English, Decorated, and Perpendicular styles. ALTAIR TABLES, Illuminated.

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**ATKINSON'S CEMENT.—This Cement** is the best ever been manufactured in the Kingdom, and through long detention at sea, has often proved stable and useful for use in the most difficult situations. By the arrangement now made, the Cement will be manufactured in London, and thus presented to consumers in the most convenient manner, by Agents, J. B. WHITE and SONS, Millbank-street, Westminster.

**KEENE'S and PARIAN CEMENTS.**  
For internal stucco, are employed very advantageously in place of wood for skirting, arches, and panel mouldings, and for the best flooring, instead of stone or marble. The Parian Cement of the Parian Cement Co. is the best for use in the most difficult situations, and is the best for use in the most difficult situations, and is the best for use in the most difficult situations.

**PORTLAND CEMENT, as manufactured** by J. B. WHITE and SONS, possesses all the properties of the best Portland Cement, but has the advantage over that material of being wholly resistant from fire. When used as a stucco it does not require to be covered with any other material, and requires no colouring. Employed on a hydraulic mortar for brickwork, it carries out to five measures of sand to one of cement, and is proved by trial to be more durable than any other Portland Cement. It is superior for use in the most difficult situations, and is the best for use in the most difficult situations.

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**PORTLAND CEMENT, solely** MANUFACTURED BY WILLIAM ASPIN, of the Patent, Messrs. ROBINS, ASPIN, and Co. report reference to Nos. 286, 287, 288, and 289, and Nos. 290, 291, and 292, and Nos. 293, 294, and 295, and Nos. 296, 297, and 298, and Nos. 299, 300, and 301, and Nos. 302, 303, and 304, and Nos. 305, 306, and 307, and Nos. 308, 309, and 310, and Nos. 311, 312, and 313, and Nos. 314, 315, and 316, and Nos. 317, 318, and 319, and Nos. 320, 321, and 322, and Nos. 323, 324, and 325, and Nos. 326, 327, and 328, and Nos. 329, 330, and 331, and Nos. 332, 333, and 334, and Nos. 335, 336, and 337, and Nos. 338, 339, and 340, and Nos. 341, 342, and 343, and Nos. 344, 345, and 346, and Nos. 347, 348, and 349, and Nos. 350, 351, and 352, and Nos. 353, 354, and 355, and Nos. 356, 357, and 358, and Nos. 359, 360, and 361, and Nos. 362, 363, and 364, and Nos. 365, 366, and 367, and Nos. 368, 369, and 370, and Nos. 371, 372, and 373, and Nos. 374, 375, and 376, and Nos. 377, 378, and 379, and Nos. 380, 381, and 382, and Nos. 383, 384, and 385, and Nos. 386, 387, and 388, and 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# The Builder.

No. CCCXCVII.

SATURDAY, SEPTEMBER 14, 1850.

IT is much to be regretted that architects and engineers have left few records of the conduct and progress of their works.

When we name Labelye's "Description of Westminster Bridge (1751); Peronet's *Description des Projets et de la Construction des Ponts de Neuilly, de Mantes, &c.* (1782); Rondelet's *Mémoire Historique sur le Dome du Panthéon Français* (1797); Smeaton's "Narrative of the Building, and a Description of the Construction of the Eddystone Lighthouse," we have mentioned nearly all that are of any importance. The value of such records can scarcely be overrated; and every inducement should be held out for the production of such accounts of future works, records of the principles which regulated the design, the modes of construction employed, the failures, if any, that occurred, and the facts that were made evident during the progress of the undertaking.

Entertaining this opinion, we can but view with pleasure the publication, by Mr. Edwin Clark, the resident engineer during the construction of the Britannia and Conway Tubular Bridges, of a full and comprehensive account of those great achievements of modern science and skill,\* and that, too, notwithstanding the previous appearance of Mr. Fairbairn's volume on the same subject, to which full justice was done in our pages some time ago.

Mr. Clark's work consists of two large octavo volumes of letter-press and tables, illustrated with wood engravings, and a folio volume containing forty-five plates: six of these are tinted lithographs by Mr. George Hawkins, and the remainder are engraved on stone by Messrs. Day and Son. Both Mr. Hawkins and Messrs. Day, we may say at starting, have executed their parts well. As regards the latter, plate 7, "The Anglesea Entrance," may be cited as a singularly good specimen of etched lithography. The tinted views are from sketches made with the camera lucida, and perpetuate the process of construction.

To give a general idea of the contents of the work, we may state briefly that section 1 contains a record by Mr. Stephenson himself of the circumstances which led to these surprising structures, the reasoning from which they emanated, and the early development of the design. Section 2 contains an account of the preliminary experiments, with practical deductions. In section 3 a general exposition of the theory of beams is given. Section 4 contains many experiments on the strength of materials employed in construction. The elaboration of the detail is continued in section 5. Sections 6 and 7 contain a minute description of the structures themselves, the floating, and the incidents peculiar to works of such magnitude. Section 8 is devoted to the application of the general reasoning contained in preceding chapters, the calculations of strength and deduction; and section 9 gives an account of a

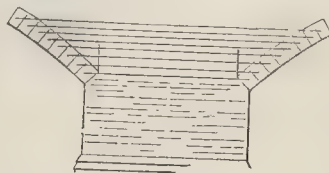
\* The Britannia and Conway Tubular Bridges. General Inquiry into Beams, and on the Properties of Materials used in Construction. By EDWIN CLARK, Resident Engineer. Published with the sanction, and under the supervision of Robert Stephenson. In Two Volumes, with Plates, in folio. London, published for the Author by Day and Son, Lincoln's-Inn Fields; and John Weale,

long series of tidal observations, and closes the work.

Our readers do not now require to be told that the Britannia Bridge is part of the Chester and Holyhead Railway, the connecting link between the capitals of England and Ireland; that it passes from the Anglesey coast to the Carnarvon side of the Menai Straits; that the river is at that point divided into two channels by a bed of irregular rocks, and that the total water-width from shore to shore in the line of the bridge is 1,100 feet. It may be well, however, to remind them of these points, and to say further, that any midway support was limited to a small area of the rock mentioned; the roadway was required to be 103 feet above the water, scaffolding from below was impracticable, and the navigation was under no circumstances to be interfered with. To meet these requirements, hollow beams, each 472 feet long (get a clear idea of this length in your own mind before you go any further),—hollow beams, 472 feet long, were constructed on the beach, 1,500 feet from their permanent site; were floated upon rapid tides to their destination; and, although weighing nearly 2,000 tons each, were ultimately lifted 100 feet up into their place, to bear Mr. Stephenson's name with honour to posterity.

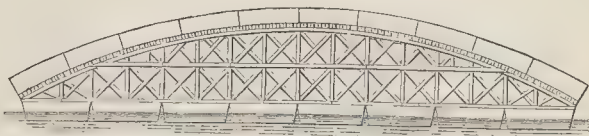


The erection of the arch was to be proceeded with by placing equal and corresponding voussoirs on opposite sides of the pier at the same



This system, it is confidently believed, may be successfully carried out to a far greater extent than would have been required in the case of the Britannia Bridge.

The peculiarity of the site of Conway Bridge pointed out the necessity of some other method being devised for the erection of the arch, and led to the idea of building the arch complete



"The rise and fall of the tide was such as to admit of its being brought immediately above the springings and lowered into its place by the falling tide, or by admitting water into the pontoons at the top of the tide, before the velocity of the ebb stream had increased so as to interfere with the accurate adjustment of the descending mass."

We must not attempt to follow the work through all its chapters, but will dip into it for such passages as, while they give an idea of its execution, will afford information to our readers. We will first take some experiments made (with actual weight) on the crushing of the limestone, sandstone, and brick employed in the construction.

"The bricks were built into cubes in cement, so that six bricks were used in each experiment, break-

"It will assist the judgment, in considering the magnitude of this span, to call to mind the dimensions of some of the largest existing insistent structures, premising that a suspension-bridge would be inapplicable to railway purposes.

	Material.	Span of Centre Arch.	Rise of Arch at Centre.	Date of Completion.	Engineer.
Sunderland over the Wear .....	Cast Iron	240	30	1796	Wilson
Southwark Bridge	Ditto	240	24	1818	Rennie
Dee Bridge, Chester	Sandstone	200	42	1833	Hartley
Pont du Carrrouel, over the Seine .....	Cast Iron	187	151	1836	Polonceau
London Bridge .....	Ditto	152	291	1831	Rennie
Maidenhead Bridge, over the Thames, on the Great Western Railway .....	Brick	128	241	1836	Brunel

It will be observed how far short all these magnificent works fall of the dimensions required, the tube for the Britannia Bridge being 472 feet long, or nearly double the largest of them."

While the problem, how to cross, was yet unsettled, Mr. Stephenson entertained the idea, amongst others, of cast iron arches, by placing equal and corresponding ribs on opposite sides of the pier, and to complete the ironwork in the form shown by the following figure.

time, tying them together by horizontal tie-bolts, as shown below.

on centering supported entirely upon, and framed into, a series of pontoons kept afloat during the whole time of construction. This arrangement, which is shown in the following sketch, appeared upon the whole by far the most feasible that had been suggested, and well adapted for placing the arch into its permanent position.

ing joint. The bricks were not of a hard description, being manufactured on the spot.

## BRICKWORK.

Lbs. per Sq. Inch.

No. 1. 9-inch cube of cemented brickwork (Nowell and Co.), No. 1 (or best quality), weighing 54 lbs., set between deal boards.

Crushed with 19 tons 18 cwt. 2 qrs. 22 lbs. . . . . = 551.3

No. 2. 9-inch brickwork, No. 1, weighing 53 lbs., set in cement.

Crushed with 22 tons 3 cwt. 0 qrs. 17 lbs. . . . . = 612.7

No. 3. 9-inch brickwork, No. 3, weighing 52 lbs., set in cement.

Crushed with 16 tons 8 cwt. 2 qrs. 8 lbs. . . . . = 454.3

No. 4. 91-inch brickwork, No. 4, weighing 551 lbs., set in cement.

Crushed with 21 tons 14 cwt. 1 qr. 17 lbs. . . . . = 568.5

No. 5. 9-inch brickwork, No. 4, weighing 541 lbs., set between boards.



BRICKWORK.		Lbs. per Sq. Inch.
Crushed with 15 tons 2 cwt. 0 qrs.	12 lbs.	117
Mean .. ..		521
The average weight supported by these bricks was 33.5 tons per square foot, equal to a column 583.69 feet high of such brickwork.		
SANDSTONE.		
No. 6. 3-inch cube red sandstone, weighing 1 lb. 14 oz., set between boards (made quite dry by being kept in an inhabited room).	Crushed with 8 tons 4 cwt. 0 qrs.	19 lbs. = 2043
No. 7. 3-inch sandstone, weighing 1 lb. 14 oz., set in cement (moderately damp).	Crushed with 5 tons 3 cwt. 1 qr. 1 lb. = 1285	
No. 8. 3-inch sandstone, weighing 1 lb. 15 oz., set in cement (made very wet).	Crushed with 4 tons 7 cwt. 0 qrs.	21 lbs. = 1085
No. 9. 6-inch cube sandstone, weighing 18 lbs., set in cement.	Crushed with 63 tons 1 cwt. 2 qrs.	6 lbs. = 3924.8
No. 10. 9½-inch cube sandstone, weighing 58½ lbs., set in cement (77½ tons were placed upon this without effect, = 2042 lbs. per inch, which was as much as the machine would carry).	Average crushing weight ..	2185

The average weight required to crush this sandstone is 13½ tons per square foot, equal to a column 2351 feet high of such sandstone.

LIMESTONE.		
No. 11. 3-inch cube Anglesey limestone, weighing 2 lbs. 10 oz. set between boards.	Crushed with 26 tons 11 cwt. 3 qrs.	9 lbs. = 6618
This stone formed numerous cracks and splinters all round, and was considered crushed, but on removing the weight about two-thirds of its area were found uninjured.		
No. 12. 3-inch limestone, weighing 2 lbs. 9 oz., set between deal boards.	Crushed with 32 tons 6 cwt. 0 qrs. 1 lb. = 8039	
This stone also began to crack and splinter externally with 25 tons (or 6220 per inch), but ultimately bore as above.		
No. 13. 3-inch limestone, weighing 2 lbs. 9 oz., set in deal boards.	Crushed with 30 tons 18 cwt. 3 qrs.	24 lbs. = 7702.6
No. 14. 3 separate inch cube limestone, arranged in a triangle, weighing 4½ oz., set between deal boards.	Crushed with 9 tons 7 cwt. 1 qr. 14 lbs. = 6995.3	
All crushed simultaneously.		
Average .. ..		7579

The weight required to crush this limestone is 47½ tons per square foot, equal to a column 6433 feet high of such material.

As to slate—a slab of slate 2 feet 10 inches broad, 4 inches thick, and 4 feet between the bearings, failed with 24½ tons distributed over 15 inches at the centre of the span. Cast iron of same dimensions would scarcely support five times as much, and would be 2½ times as heavy.

Experiments were made on the transverse strength of whole balks of American red pine timber.

"These beams were exactly 12 inches square and 17 feet long, the distance between the bearings being 15 feet. They were broken by actual weight suspended on a scale from the centre of the beams. Dry timber from the butt end of the balk. Weight of the beam, 5 cwt. 2 qrs. 5 lbs., or 36.5 lbs. per cubic foot. Breaking weight, 14.82 tons. Dry timber from the top of the balk. Weight of the beam, 5 cwt. 17 lbs., or 33.9 lbs. per cubic foot. Breaking weight, 13.24 tons.

The mean breaking weight of these two balks was therefore 14 tons, and from the formulæ  $c = \frac{W}{a}$ , we have  $c = 1.45$  ton; or, for the breaking-weight of any beam of such timber, we have  $W = \frac{a}{1.45}$ , 1.45 ton, the dimensions being all in inches."

It is interesting to trace the various modes of effecting certain objects which presented themselves. Thus Mr. Stephenson had at one

time determined to erect the tube *in situ* in the following manner:—

"He proposed, 1st. To construct a suspension-bridge of sufficient strength to carry the tube and any load that might be required; the platform or roadway, of this bridge being at the intended level of the tubes.

2ndly. To prepare platforms at the same level at each approach of the suspension-bridge, and on these platforms, as well as across the suspension-bridge, to lay down a railway.

3rdly. To construct the tube on the railway on a line of trucks moveable bodily on wheels or rollers.

4thly. To load the suspension-bridge with a distributed weight, about equal to the intended tube, supported on a line of trucks on the suspension-bridge.

And lastly. To draw the tube thus supported on to the bridge at one end simultaneously with the withdrawal at the other end of

the line of loaded trucks, so as to prevent any great undulation in the suspension-bridge."

Returning, however, to the bridge as erected, the Britannia Tower is 221 feet 3 inches high, with a batter of 1 in 36 on all sides. It contains 151,158 cubic feet of Anglesey limestone, 127,001 cubic feet of Runcorn sandstone, and 68,411 cubic feet of brickwork, in all weighing 24,700 tons. Including the bed-plates it contains also 479 tons of cast iron, and the weight from the two tubes will be about 4,000 tons. The total weight at the foundations is thus 29,600 tons, or 16 tons per superficial foot of sectional area; whereas the weight required to crush the lower courses would be about 500 tons per superficial foot.†

The annexed engraving is a view of the approach to the bridge, and of the Island of Anglesea, from the Britannia tower.



Over the entrances to the tubes are massive lintels, consisting of single stones, 20 feet long, and the approaches are marked by colossal lions couchant on pedestals,—a view of one of which is annexed. These lions were designed by Mr. Thomas, of the New Houses of Parliament, and are each composed of 11 pieces of limestone: they are each 25 feet long, 12 feet high, and weigh about 30 tons. It is stated, as an illustration of the perfection of the scaffolding employed, that one of these lions was brought from a workshop at the base of the abutment, raised 100 feet, and put together complete on the pedestal in a single day.

The Britannia Bridge contains altogether 1,492,151 cubic feet of masonry, weighing 104,875 tons. During two years and nine months the masonry has been set at the rate of 3 cubic feet per minute. The wrought-iron roadways weigh 9,360 tons; and the cast-iron used weighs 1,987 tons. The cost of the bridge, when nearly complete, was estimated as approximately as it could be ascertained as follows:—

Pedestals, wing walls, Carnarvon	£17,459
Carnarvon Tower .....	28,626
Britannia Tower .....	38,671
Anglesey Tower .....	31,430
Pedestals, wing walls, Anglesey	40,470
Lions .....	2,048
Wrought iron used in tubes ..	118,946
Cast iron in tubes and towers ..	30,619
Construction of tubes .....	226,234
Pontoons, ropes, capstans, painting materials, &c. ....	28,096
Raising machinery .....	9,732
Carpentry and labour in floating, raising, and completing the bridge .....	25,498
	158,704

Experiments, proportional part of the whole .....	3,986½
	443,161

Total £ .....

£601,965

Some of the *acoustic* effects produced by the bridge are interesting. The report of a pistol fired beneath the bridge is repeated three or four times. The rapid repetition of echoes from each of the T irons on the side of the tube gives rise to a shrill whirling musical note. When any violent noise is produced on the adjacent shore, the note is the same whether produced by the blows of the riveters or the report of a cannon, and corresponds to the low D on a concert flute. "The cells of the top and bottom form excellent speaking tubes, and conversation may be carried on through them even in a faint whisper. By elevating the voice persons may converse through the entire length of the bridge, a distance of more

\* To enable the reader to compare this suspension-bridge with other similar structures, we here subjoin some details of well-known suspension-bridges:—

Bridges.	Span. Feet.	Area of chain. Square Inches.	Feet.
Monal	580	260	43 Telford, 1820.
Conway	327	130	22.3 Ditto.
Hungerford	674	234	54.5 Brunel.
Cifton	700	480	70 Brunel.
Hammersmith	423 25	180	29.85 Tierney Clark.
Pesth	685	520	48.0 Tierney Clark.

† Stone-work, &c. ....

24,679

Cast-iron .....

4,000

Two tubes, &c. ....

380

Junction and castings .....

29,538

Area of tower at base, 1847 square feet.

‡ The total cost of the experiments was 6,530.

§ The cost of the money spent on the Britannia Bridge at 5 per cent., may be called 600l. per week. In contenting so fine a work one can scarcely stop to consider money; the expenditure of such an expenditure, however, as the whole line displays, will probably force itself on the consideration of some who are interested.



than 500 yards. If one end of the cells be closed they return a powerful echo; but although a whisper is thus distinctly repeated, the loudest whistle does not appear capable of returning any echo."

We have only left ourselves space to say that

Mr. Edwin Clark has proved, by the publication of the elaborate and comprehensive work before us, that Mr. Stephenson had, at all events, one zealous assistant, competent as well as willing, to carry out his intentions and advance his interests.



#### ON LINEAL EXPRESSION AND ARCHITECTURAL DESIGN.\*

THAT ornament should suit itself to the general character of the building is easily allowed. However it should not only serve a purpose in this respect, but also have a meaning in itself. Yet how does the case stand? At the entrance of few modern buildings would the spectator find cause in this regard to suspect himself in England or in a northern or Christian country at all. Grecian games—Roman triumphs—heathen sacrifices and symbols—to the people dead and unmeaning, to the instructed offensive and absurd. Does our past afford us no scope for sculptured ornament? Have we not our ancient mythology, our times of romance, our history, our legends, our literature, our present, dull only to the dull? It is true we have got rid of the heads of sacrificial oxen, Jupiter's thunderbolts, and the grosser cases of anomalous sculpture, but much, too much yet remains: we may have divested ourselves of the toga, but we still strut about in the Phrygian cap or Roman sandal.

This is as truly the fault of the sculptor as of the architect, if not more. In the same way as the architect has allowed the engineer to encroach on his prerogative, has the sculptor allowed the architect to encroach on his. The sculptor should attend more to the benefit which architecture might afford him, and the charm which he has in his power to give her, as exemplified by all ages except our own. This fault is now, however, being remedied, and as the sculptor is becoming more employed on buildings, we should earnestly impress on him, the scope which the history, literature, and custom of our country afford him for the exercise of his fancy, the following out of which principle renders Gothic sculpture a book as it were in which all may read, be delighted, and instructed, and makes the sculpture of the ancients, besides its other merits, a valuable source of information to us, and the study of *literati*.

In the perception of this do the French vastly excel us; but the very boldness with which they apply modern subjects to ancient forms, as in the Arc de l'Etoile and the Madeleine, for instance, should act as a caution to us to go not over fast: it is enough to commence the change, and it will glide on easily and agreeably into the fact of an entirely different system from that whence it sprang.

The Gothic imitator is better and worse off in this respect than the ordinary practitioner. One period of our history and literature he can well express, but out of that every thing becomes distorted and false, as in some dis-

cases of the eye, where all colours are seen as though of one unchangeable hue.

Bigots, in any style, are the propagators of what is false, and are equally wrong in making George the Fourth riding almost naked and without reins, and in turning Victoria into the wife of Henry the Fourth. It is not that this or that thing is incapable of application, although it may be difficult, the power of so applying lies in the artist, not in the object. Does any one suppose that the human beings and graceful drapery of the Grecian friezes, &c., are representations of national fact? Does any one really suppose that there was this monotony of perfect beauty? Have we not heard of Socrates, of Thersites, of Diogenes, of Æsop? It was, however, the sculptor's business to suit his work to its continent form, and well has it been effected.

Do we fancy that the figures and dresses of the middle ages were so invariably picturesque as they are shown, or so charming in their angular quaintness; was dress never in disorder; was ornament universal; were all cloaks made of that material which is best calculated to fall in sharp, small, and angular folds? Assuredly there was scope for diversity of treatment; but, again, it was the sculptor's object to suit his work to the picturesqueness of its setting, and it is done with a success in no way inferior to the other.

Neither the one nor the other, however, speak of the last 200 years of English life, they are the glory and exponents of the past,—but it is for the sculptor of the day to embody the spirit of the day, which is the spirit of the whole national history; it is not this dress or that, but the energy, the inventiveness, the religion, the literature, the genius of an imperishable race, extending in range from its savage down to its present civilised state; and here let us take to heart the words of an eloquent American philosopher, Emerson. "Beauty must come back to the useful arts, and the distinction between the fine and useful arts be forgotten. If history were truly told, if life were nobly spent, it would be no longer easy or possible to distinguish the one from the other." "Beauty will not come at the call of a legislature, nor will it repeat in England or America its history in Greece. It will come as always unannounced, and spring up between the feet of brave and earnest men."

Architecture is as much a fine as a useful art, and affords scope for the highest application of the sculptor's imagination: not only, then, should the additional charm of sculpture be sought, but we should seek that particular class of character which suits the corresponding character of the nation, and for this reason I cannot but regard the beauty of ancient

Greece or Rome as partially unfitted to our national perception.

The northern races are, and have always been, distinguished for their perception of the fanciful, the picturesque, the irregular, the original, the strongly marked; it is shown in their literature, their architecture, their painting, music, sculpture, legends, and history; it bears no analogy to the genius of the south; it is no deficiency, but a difference of perception which marks them. And those who labour on half despondingly to evoke the spirit of beauty in the people, must first of all educate and train them into a just appreciation of it, for slightly does it enter into their national character. The heart that bounds, or the eye that glistens, at the merry or plaintive strains of a correspondingly tuned music, remains unmoved at the most regular, normal, and merely beautiful composition of a disposition foreign in its expression to his nature; and I have seen men to whom all the wonders of Grecian and Roman sculpture were little better than dolls, who had no perception of art as art, stand enchained and delighted before the rough but fanciful ornament of a sculptured Gothic tomb. It is very usual to run down the English as dull and slow in the perception and love of art, as a nation; but are those who complain of this sure that they touch the right chord of the national feeling? Are they not drumming Homer or Sophocles into the ears of those who, dull and irresponsible to the lesson, yet feel strongly and passionately the irregular but corresponding charms of a Shakspeare or an old balladist? Do they not seek to make exclusively attached to cloudless skies, calm seas, and perennial springs, those in whom the power of the storm, and the gloom of the mist, the roaring of the restless ocean, and the wildness of the mountain path, are a love and a delight? They speak to us in a language we understand not, and complain of our stupidity in not answering. Now that the language in which they would always address us begins, by most intense application, to be understood, they look around with satisfaction, and hug themselves with the idea that the Beautiful is taking root and overspreading the land. But I feel convinced, that whilst a Gothic monument, a single ballad, an old sword-hilt, or a broken letter, exists, there exists also the hiding-place of a power, the true sovereign and genius of the people, which will at the proper moment, and in due time, rise like one of the native heroes of the past, and keep the stranger in subjection to its sway.

It is for this reason that the sculpture of a building should address the natural feeling of the nation, and speak to them, not only in a language which they can understand, but of facts with which they are most likely to be acquainted.

As regards the proper points of decoration, we may see that all junctions and angles are more legitimately such. This is the case in Grecian, Roman, Norman, and Early Gothic; also the Tuscan palaces, in some of which the angle wall has especially been studied. In the Roman palaces, the same is seen in the angle rustication, where an ornamental appearance is more particularly sought. I cannot but think that the decoration should be confined to the principal features—the doors, windows, strings, and cornice—for the massiveness or strength of the building is retained by the breadth of the plain interspaces, and the eye more agreeably runs over the ornamental character of the mass in perspective, and can study each feature separately and undistractedly. As examples of this system, one might remark, the earliest palatial buildings of the north of Italy: the terra cotta palaces of Ferrara and Bologna; the town-hall of Piacenza; the hospital, Milan; the Podesta's house, Orvieto, and Norman architecture, generally; whilst the effect produced by distributing the decoration more equally over the whole surface, is to be seen in the later periods of Gothic art; in many Elizabethan buildings; in the town-hall, Seville, the monasteries of Valladolid, and in Spanish architecture, generally (of the revival); and in Italian cinque cento, at the Doge's palace, and palazzo Trevisano, Venice; and the Certosa, Pavia: in all these, the greater or less quantity of work applied throughout the surface renders them (however admirable

\* See p. 400, ante.



as mere ornament) cut up, weak, distracting, and deprives them of that idea of solidity or strength which should be inseparable to even the most ornamental building that architecture could raise.

String courses should form a primary ornamental feature, and are well shown in the earliest palaces of the Revival at Cremona and Piacenza, and other Lombard towns; they are more reasonable subjects for good ornament than the top frieze, which is too far off to be easily made out; indeed, they should partake more of the character of a frieze, with projecting mouldings, carried off by mouldings and spaces into the wall, and ranging on the first tier of windows with the balconies: all projecting mouldings may be advantageously carved at angles into heads or figures, as was often done in Tudor architecture, or heraldic shields, somewhat after the Tuscan principle.

There are many other methods of obtaining ornamental effect which take a secondary place, such as the formation of geometrical patterns by receding brickwork, a system very effective in some cases, and most in use among the Spaniards and Moors: for blank walls with brick cornices on edge it tells very well. Specimens of it may be seen more particularly at La Seu, and the leaning tower at Zaragoza.

Different coloured and polished marbles should be most cautiously used in such a climate as ours, the more because they appear unfitted for exposure, and the effect gained by them is very dubious. These and the system of intaglio either of marble or of artificial substance, are more fitted for internal decoration, and then should be used reasonably, and not placed so far from the eye as to be seen with difficulty, as is often the case at Florence, Palermo, Monreale, and Orvieto, and in many modern Gothic buildings. Geometric designs of the same description used by the Moors, are generally placed nearest the eye, as in skirting, dados, &c., but this comes more under the head of internal ornament, which we will not enter on.

It was the custom of the Romanesque builders to leave the thorough stones, and not saw them off as is now done: their projection gives additional picturesqueness to the wall, affords room for sculpture, and in repairs may be turned to advantage. Knockers, bell-pulls, scrapers, water-pipes, lamps, railings, are all legitimate subjects for design, and confer additional interest on a building, but as inferior objects they should not be brought too prominently forward: it is in the actual parts of the building itself, more especially the portal, cornice, string courses and windows, the chief ornament should lie; and in all these we should avoid flimsiness, shallowness, senselessness, and extravagance. Neither should the same ornament be indiscriminately applied to all buildings; it would be like playing the same accompaniment to different airs: we must remember that ornament in itself is capable of various expressions, and the antiquary, from a few pieces of such which are found in a ruin, may be informed of the general character the building bore, as clearly as when we find a torso, a head, or an arm of a statue, we can conclude as to the character of the form to which it belonged.

And for this reason, when original ornament is applied, the particular leaf, flower, shell, or figure, which assimilates to the character of the building, should be carefully chosen, and then drawn, altered and adapted for the further development of that character, and for the production of light and shadow. This is to be seen in Grecian, in Gothic, and in most styles of the past, and we should sedulously avoid the idea, that the actually beautiful is applicable to all purposes, for an object excellent in itself is not always so in combination with a different nature of excellence.

J. B. W.

**NEW CONGREGATIONAL CHAPEL IN SOMERS-TOWN.**—The foundation-stone for a chapel for 2,200 persons of the Independent body in the Somers-town district, was laid on Wednesday, on a site near Oakley-square. It is to be called Bedford Chapel, and will be in the Norman style, with two towers in front, from plans by Mr. Tarring, architect, to be carried out by Mr. Holland, builder. The cost will be 3,000l.

#### THE SCOTCH FREEMASONS AND FIRST-STONE LAYING.

THE citizens of Edinburgh almost missed the satisfaction of seeing Prince Albert lay the first stone of their National Gallery of Art. It appears that the Prince is not a freemason, and the Duke of Atholl addressed a letter to his Royal Highness, stating that the practice in Scotland legally and by custom, was for none but a freemason to lay a foundation-stone, and that if his Royal Highness did not get himself initiated, he could not legally or with propriety officiate at the ceremony. The Prince enclosed this letter to the Provost, and expressed his regret that this being the custom he could not now fulfil his promise and intention of laying the foundation-stone. In this dilemma, the Lord Provost exerted himself to the utmost. Sheriff Gordon drew up a history of freemasonry, both in Scotland and England, exhibiting the fact that the right arrogated by the Duke was not sustained in any way whatever. The Solicitor-General sent a professional opinion to the effect that the Duke's talk about the law of the case was entirely groundless and nonsensical. Mr. Playfair wrote a letter showing that, in his long and varied experience as an architect, there had been no binding or even prevailing custom as to foundation-stones being laid with masonic honours,—giving, among other instances to that effect, the Register-office, the Physicians' Hall, the Free Church College, and which is even more to the purpose, the Royal Institution, erected on the same site, and for similar purposes as the building the commencement of which the Prince had been asked to countenance and commemorate. The Prince was satisfied, and did his work. The freemasons, however, who were to have formed part of the procession, did not attend.

#### POSITION OF ARCHITECTS IN IRELAND.

IT is reasonable to expect that I should make some reply to the observations of the "Celt," respecting my letter which appeared a short time since in *THE BUILDER*, on the degraded state of architecture in Ireland. \*

There is a grand obstacle to be overcome (if those works which are monopolized by a certain chosen number of the profession were thrown open to public competition), namely, the unfairness and partiality which are manifest in the decision of every nineteen out of twenty committees advertising for architects' designs. Now, I, as well as every other member of the profession, must feel interested in this, and I should greatly desire to be enlightened as to the method of obviating this difficulty. Means, I am aware, have been from time to time suggested, but all were so very defective that as yet none of them have ripened into existence. I am impressed with the conviction that there are more than ordinary difficulties in the effecting of this end; and it will require great ingenuity and system in any person or persons who may finally mature an arrangement which will totally exclude the possibility of foul play in committees.

Respecting the Board of Public Works, I have a few words to say. Although they have been held up by the "Celt" as an honourable exception to public bodies, and as truly liberal and art-encouraging patrons, yet, let it be remembered, that they, too, have their engineer and architect, under whose directions and from whose drawings a large number of buildings have sprung into existence. It is true that they have, on a few occasions, extended their patronage to other architects than their own officer, and in some instances in addition to that cited by "The Celt," viz.—The Mul-lingar Lunatic Asylum, Mr. J. S. Mulvany, architect; Omagh, ditto, Mr. Farrell, architect; and Kilkenny, ditto, Mr. George Papworth, architect; and also on many other occasions that it is unnecessary to name.

This I freely admit, but here, too, there are difficulties in the way. The assistance of professional men is called in, and their designs received (as it is presumed) in conformity with the principles of art, and they are then left to the mercy of any individual to whom the post may be allotted (too often to some quite ignorant of even the rudimentary principles of art), to mutilate and lop off as false notions of economy may dictate, and then the works are

erected with such incongruities, that they remain to posterity specimens of a degraded taste, instead of relics of improvement in the art of the nineteenth century.

In my former letter I stated that there were "gems of art to be found in Ireland," and this assertion seems to have called forth all the satirical qualities of "The Celt," and an expression of regret that I did not point out some of these gems to his notice.

To verify my assertion, I conceive it to be a justice which I owe to myself, to take some notice of his observations in this particular. Among those to which I alluded, I shall merely name the principal, viz.—The New Cork College, by Sir Thos. Deane; the Belfast College, by Mr. Lanyon; the Galway College, by Mr. J. B. Keane; the Cathedral of Tuam, which is universally admired; the Cathedrals of Armagh and Kilkenny; Dundalk chapel, and a few other chapels, and buildings, consisting of lunatic asylums, court houses, &c. through the country, a detailed recital of which I do not believe necessary, as I have already furnished sufficient examples for my purpose.

In my eulogiums upon the public buildings of Dublin, I confess I did not include (as "The Celt," has erroneously supposed) the new Terminus of the Great Southern and Western Railway.

Perhaps I may be censured for this criticism, and be accused of want of taste and discernment, but I am prepared, if necessary, to enter into a minute analysis of my objections to this building, to the merits of which, for interior arrangement, I am sensible, but which, as a work of art, I must always condemn. Let it not be considered that my observations are the result of prejudice, because the architect is an Englishman. Although there have been great complaints (and with good reason, too), respecting the partiality of the company in the arrangement of the competition advertised for this building, I have seen all the public buildings in the metropolis and principal cities and towns of England, and can appreciate the talents of some of its professors there. I cannot believe that the King's Bridge Terminus, with all its attempted grandeur, which is so pleasing to the uneducated eye of the public, and for which the shareholders have had the pleasure to pay in or about 100,000l. is deserving of being weighed in the scale of art with the simple, unpretending, and truly artistic church in Mountjoy-street, designed by the late Mr. Semple. J. J. L.

#### NOTES IN THE PROVINCES.

THE first stone of the new church of St. James, Ogley Hay, was laid on Thursday week by Lord Lewisham. It is in the early decorated style, consists of a nave, transepts, and chancel, and has a turret for three bells surmounting the west end. The church will contain 300 adults and 80 children. The cost is to be about 1,200l. Mr. G. T. Robinson, of Wolverhampton, is the architect, and Messrs. Hardwick and Son, of Birmingham, are the builders.—The Leicester public cemetery is now open; its size is about 12 acres.—On 29th ult. the church of Norton St. Philip's, near Bath, was opened on completion of the works, nearly the whole church having been rebuilt, except the western tower, and a portion of south aisle. The whole area of the church is filled with open seats: the chancel seats and screens are carved. The floor is paved with Minton's encaustic tiles, and the windows of chancel are filled with painted glass by Wailes. The work has been completed from designs by Mr. G. G. Scott, architect, and carried out by Mr. William Brown, builder, Frome.—The school-rooms and residences of the Scudamore foundation at Hereford are about to be erected on plans by Mr. T. Nicholson, of St. Owen's-street, Hereford, architect. The cost must not exceed 1,500l.—On Wednesday week a discussion took place in the Liverpool council on a motion for the adoption of the report of a committee for the establishment of a free public library there. Mr. Picton, in making the motion, remarked that Manchester was about to follow the example of its neighbour Salford, and measures were then being taken to establish a free public library in Warrington. In New York 400,000 dollars had been given for



the establishment of a public library there. Glasgow, Edinburgh, and Dublin had already libraries open to the public. Hamburg, a city with not one-fourth the population of Liverpool, had a library containing 150,000 volumes of books, and a commercial library of 30,000 volumes, both open to the public. It was to be hoped, therefore, that Liverpool would not be behindhand in contributing to the onward march of improvement. Ultimately the report, recommending the formation of a library, was adopted by a majority of 36 to 11. The proprietors of the Royal Institution in Colquitt-street have already agreed to hand over for the purpose, without any pecuniary consideration whatever, their library, museum, and gallery of arts, with the stipulation merely that these shall be kept in their usual state of efficiency. Recently, in digging a drain at the foot of Middle-chare, Chester-le-Street, Chester, some workmen discovered the perforated stone in which the old town-cross was formerly fixed. The Bishop of Manchester was to consecrate the new church at Lytham, on Wednesday. Lord Stanley is to lay the foundation stone of a literary institution in Bury. The cathedral erected by the Roman Catholic body in the city of York was consecrated on Wednesday week. Sir Robert Peel's "portrait" is to be the Stockton "memorial" of the deceased statesman. Mr. R. Stephenson has reported to the directors of the Manchester, Sheffield, and Lincolnshire Railway that it would be inexpedient to diminish the area of the Grimsby Docks, as first proposed. After going through several plans of reducing their cost, he comes to the conclusion that a present saving of 46,085*l.* might be effected, but that a clear loss of 32,865*l.* would be entailed whenever the dock had to be completed to the size originally contemplated. Mr. John Howison, the County Surveyor at Durham, has prepared specifications for the repair of the county bridges for a series of years, in lots of two to eighteen bridges. The directors of the Sunderland Dock Company have awarded 10*l.* to Mr. J. Kean, of Deptford, engineer, for the best model of a set of masting shears for the docks. The mechanism is simple. The directors have let the contract for erecting the shears (at the north side of the dock) to Mr. Kean. The machinery, says the *Gateshead Observer*, will be of great convenience to ship-builders and merchants in fitting out large vessels. The improvements at Leith are progressing steadily. The timber arching, from north wall of dock to western breakwater, is nearly completed. The piling of the western breakwater is completed as far as the low-water pier. Of the eastern pier, 960 feet of piling is complete; while the range of stones from the pier to the Martello Tower is being removed. The Martello Tower itself is fitted up for artillery. The new dock walls are completed, excepting the eastern, now being built. The inverted archway of the entrance is also pretty far advanced. The largest bell, it is said, ever cast in Ireland has just been completed by Mr. Murphy, of Dublin, bell-founder. The weight is upwards of two tons, and it is intended for a Catholic church, at Newfoundland.

## RAILWAY JOTTINGS.

THE reduction of charges, judiciously carried out, and the extension of the cheap excursion system, appear to be yielding a rich harvest, on various lines, that must help to redeem them from recent adversity. An announcement by the Great Western, of a cheap excursion from Paddington to Bath and Bristol, at fares assuredly low enough to stagger all but those full of faith in the productiveness of such temptations to travel, namely, 5*s.* to and from Bath, and 6*s.* to and from Bristol, was recently responded to in such a way that, according to a contemporary, "the two trains produced about 900*l.*, of which upwards of 800*l.* must be clear profit to the company." Again, "The excursion-train from Oxford on Monday," says another contemporary, "brought up to Paddington 3,200 persons. The train yielded about 650*l.*, and the expenses were, perhaps, 30*l.*" A recent Sunday trip to Brighton and back for 3*s.* 6*d.* (!), tempted 2,220 persons to benefit both their own health and the railway treasury by acceptance of the

offer. A reduction of fares for a trip from Sheffield to Rotherham on Sundays, down to half price, lately increased the usual train of four carriages so greatly, that "a train of sixteen carriages was wholly inadequate for the immense number of passengers, and it was found necessary to put on an extra train of seventeen carriages." The companies must now begin to see the advantage of a liberal policy in dealing with the public, especially during the seasons favourable to such excursions. Are not the following statistics to be, at least to some extent, attributed to the extension of this particular line of policy, both as regards passengers and goods? "The receipts for the past week," says *Herapath*, "on 5,685 miles, were 276,221*l.*; being at the rate of 48*l.* 10*s.* per mile per week; for the corresponding period of 1849, on 5,261 miles, 252,272*l.* was received, being at the rate of 48*l.* per mile per week; showing an increase in the mileage of 424 miles, an increase in the amount received of 23,949*l.*, and an increase of 10*s.* in the amount received per mile per week." The Railway Passengers' Assurance Company appears to be also reaping the benefit. At the half-yearly meeting lately, they announced a dividend of 8 per cent. after all expenditure. The number of single-journey tickets issued during the year was 24,788 first class, 41,515 second class, and 43,771 third class, and the periodical tickets were 2,808. The amount of railway calls for September is 561,355*l.* against 865,054*l.* last year, 2,625,936*l.* in 1848, and 4,161,934*l.* in 1847. The total amount for the nine months ending September of present year is 9,617,096*l.* against 16,654,215*l.* in 1849, 28,378,955*l.* in 1848, and 38,843,013*l.* in 1847. The total amount of income-tax paid by the several railway companies in England and Scotland for the year 1849, according to a recent return, was 237,909*l.* 13*s.* 10*d.*; the amount for England being 218,899*l.* 18*s.* 10*d.*, and that for Scotland, 19,009*l.* 15*s.* The London and North-Western paid 50,684*l.*; the Great Western, 24,631*l.*; the Midland, 19,438*l.*; the London and Brighton 17,056*l.*; and the Eastern Counties, South Eastern, and South-Western, upwards of 16,000*l.* The late engine-men and fire-men of the Eastern Counties Railway now acknowledge, it is said, that their strike was too precipitate, but their places are all filled up, and the Directors tell them that they can be taken on again only as vacancies occur. The Blackwall railway has ten stations along the line; it has carried in the half-year 1,313,975 passengers, and runs trains each way four times an hour, but it has no dividend. At the half-yearly meeting on Tuesday, the chairman said the surplus would give 6*d.* per share only. A portion of the Midland station at Nottingham was burnt and destroyed on Friday last, with some of its contents, by what is conceived to have been the spontaneous combustion of a quantity of cotton wool in packs or bales. The shed was built of brick, and it singularly happened to be the most substantial and costly in the whole yard, all the rest being wood erections: it was 24 yards long, 12 wide, and stood about the height of a three-story house. The roof was of slate, and in the interior it was fitted up with tiers of benches, platforms, cranes, &c.

## IRISH RAILWAY INTELLIGENCE.

THE directors of the Waterford and Limerick Railway have made a contract with Mr. Dargan for two sections of the line, namely, from Tipperary to Clonmel and from Clonmel to Fiddown, on condition of getting a proportionate advance from the Public Works Loan Commissioners. The large viaduct over the valley at Craigmore, on the Dublin and Belfast Junction Railway, is being completed. The rock-cuttings at the Wellington Inn and Carnagat are progressing rapidly; the cutting near the end of the contract, at Gorah Wood, is nearly finished. The embankment at the Monaghan-road is about half made; the other minor ones require about 10,000 cube yards to complete them. The bridges are in a forward state; nine of them require only to be coped and pointed; seven other bridges are in different stages of forwardness, and one has not yet been commenced. Of the Craigmore viaduct, four of the piers founded on the rock

are at the full height; the others require about 40 feet to complete them to the level of the impost. The foundations of the wings and abutments on the north side are advancing rapidly; this part of the line will be completed in Autumn, 1851. The stone culverts and drains on the line from Gorah Wood to Portadown are completed, with few exceptions; those to be built on piles are not yet commenced. A million of cube yards of embankment have been completed. Mr. Dargan and Messrs. Killin and Moore, contractors. The works at the Dundrum end of the Dublin and Dundrum Railway are progressing. Between the Grand Canal and Ranelagh-road upwards of 5,000 cube yards of masonry have been put into the retaining walls—two 4-feet and three 2-feet culverts have been built; the three bridges on Mr. Reid's property have been commenced—the foundations of two of them laid. The Dodder viaduct of eleven arches has been commenced; the foundations of the piers are nearly all taken out. The embankment near Dundrum (the heaviest work of the kind on the line) has been completed for some time. The bridge over Dundrum-road will be commenced immediately. This line will be opened for traffic on the 1st of May, 1851. Mr. James McDonnell, is the engineer. The sub-contractors have completed the permanent way through Ballyphehane Bog, for the Cork and Bandon Railway, which has at last done sinking, the bog at either side of the plant having risen considerably from the immense quantity of filling thrown in. The Dublin and Belfast Junction Railway Company have advertised for tenders for the supply of 40,000 sleepers (6,000 first class, 6,000 second class, and 28,000 third class); also for 2,000 tons of rails according to drawing, &c. to be supplied before the 1st of January, 1851. Mr. Dargan, the railway contractor, commenced operations on the Limerick and Waterford line on Monday week. It is expected that the line will be open for traffic to Clonmel and Carrick by the commencement of the year 1851. The directors of the Londonderry and Enniskillen Railway Company have finally entered into a contract with Mr. McCormack for the extension of their line from Strabane to Newtownsteward, and the plant is already on its way there, so that the work will be commenced without delay. The sum to be paid to the contractor does not exceed 33,000*l.*, the distance being ten miles, the greater part to be in debentures or shares, and is inclusive of five expensive river bridges, the entire number required; but exclusive of sleepers and rails.

**SANITARY IMPROVEMENT OF BILLINGS-GATE MARKET.**—The Corporation Markets Committee have prepared a report, recommending the adoption of "a suggestion of this city's architect and surveyor, viz., in respect of ventilation, the scheme provides a disc (patented by Mr. Bessemer), for drawing off the foul air from the lower and upper markets; and in respect to the supply of water, it proposes—first, to pump from the river, through an iron filter (similar to that used by Messrs. Calvert), sunk below low-water mark, a sufficient quantity of pure water for the purposes of the market, through a fountain, the head of water in which will raise the supplies to the height required. Secondly, to pump from the river an abundant and continual supply of water for cleansing the urinals and water-closets, and for flushing the drains and sewers, and thoroughly sluicing and cleansing the whole surface of the markets daily. The whole of the above to be effected by the means of an oscillating engine, which will also work a set of pumps for relieving the markets of the sewage water and other impurities, to be conveyed into the river at low water, under the bed of the river." The cost of the above works is estimated at 1,840*l.*

**THE BEAUFOY RAGGED SCHOOL.**—Some of our readers, travelling on the South-Western Railway, must have noticed a substantial, and not inelegant building of brick and stone, in Newport-street, Lambeth, near the Vauxhall Station. This has been erected by the liberality of Mr. H. Beaufoy, the well-known distiller, at a cost, we are told, of 3,000*l.*, for the education of street-children of the vicinity. It is about to be opened, and will accommodate a large number.



LICH GATE, BOUGHTON, KENT.



LICH GATE, BOUGHTON, KENT.

THE Lich gate, from the Anglo-Saxon *lich*, a corpse, is a shed-covering over the entrance to a churchyard, beneath which the bearers rested when bringing a corpse for burial. Annexed we give a picturesque example from Boughton Church, Kent.

#### THE BARBICAN, IN CONNECTION WITH OUR CASTLES.\*

If we look into a dictionary for the meaning of the word *barbican*, or *barbican*, we shall find it called "a narrow opening left in the walls of buildings liable to be overflowed, for the water to come in and go out at, or to drain the water from off a terrace; or an outer defence or fortification to a city; a kind of watch-tower; any outwork at a short distance from the main works; and a cleft made in the walls of a fortress to fire through upon the enemy." We do not from this get a very clear idea of what a barbican really was, and it may be

worth while to try and make this more definite.

Grose, in the Preface to his "Antiquities of England and Wales," says, "To begin from without, the first member of an ancient castle was the *barbican*, a watch-tower, for the purpose of despoiling an enemy at a greater distance. It seems to have had no positive place, except that it was always an outwork, and frequently advanced beyond the ditch; to which it was then joined by a drawbridge, and formed the entrance into the castle. Barbicans are mentioned in Framlingham and Canterbury castles. For the repairing of this work a tax called *barbecanage* was levied on certain lands."

Again in "Military Antiquities," vol. ii. p. 2, the same writer says "Next the bayle was the ditch, foss, *graff*, or *mote*,"—"the passage over it was by a drawbridge, frequently covered by an advanced work called a *barbican*; sometimes the barbican was beyond the ditch covering the head of the drawbridge."

There is a small stonework covering the gate of Bodiam Castle, in Sussex, still called the *barbican*; and the Walmgate-bar and barbican

at York will occur to the recollection of some. At Carlisle Castle, Cumberland, there is also an outer work to defend the gate, which is known as the barbican.

The etymology of the word is doubtful. It has been sought in *barbacana*, low Latin and Spanish; *barbacane*, French; *lock-in-einer-mauer*, German, &c. Spelman, the antiquary, derives it from the Saxon *burgh* and *kenn*, a place to view or ken from.

There is a street in London, near Redcross-street, in Cripplegate, still called "Barbican," from a watch-tower, and where, by the way, Spelman died in 1640.\*

Camden, in his "Brittania" (published 1586), says, when describing London, "The suburb also which runs out on the north-west side of London is large, and had formerly a watch-tower or military fence, from whence it came to be called by an Arabick name—*Barbican*."

Stow writes of the same place—"On the west side of the Red Cross" (whence Red Cross-street) "is a street called the Barbican, because sometime there stood on the north side thereof a *burgh kenin*, or watch-tower of

\* Read at meeting of the British Archaeological Association in Lancaster.

\* John Milton lived also at one time in Barbican, † Gibson's translation, 1695, p. 321.



## ILLUSTRATIONS OF THE BARBICAN IN CONNECTION WITH OUR CASTLES.



Fig. 2.

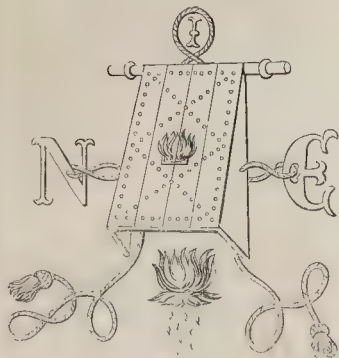


Fig. 1.



Fig. 3.

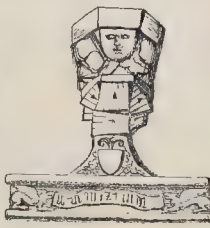


Fig. 4.



Fig. 5.



Fig. 6.

(June 1837) to the Society of Antiquaries by Mr. Planché, on a curious portrait supposed to represent Charles the Bold, but which he ingeniously showed was his brother Anthony, Bastard of Burgundy, Mr. Planché pointed out what he thought was a representation of a barbican of different appearance. He had identified the portrait by an engraving in Montfaucon's "Monarchie Française," which showed also Anthony's badge and war-cry. Montfaucon described the badge as *une espèce de Pavillon* (a sort of tent or flag) surrounded by flames, and the motto "*Nul ne si frote*." On the back of the picture in question was found what Montfaucon had thus described (see Fig. 1), but which there had the appearance of being composed of planks of wood, with fire coming through the centre. Mr. Planché found that Oliver de la Marche says, that at the siege of Oudenarde, A.D. 1452, Anthony bore a great white standard embroidered with a *barbacan*; and at the *Pas de l'Arbre d'Or*, sixteen years afterwards, the same author describes him as issuing from his pavilion, on a horse trapped with tawny velvet, embroidered with large *barbacanes*, with flames issuing out of them, and letters of his device, all worked in gold thread. Remembering that barbican was explained by Roquefort to mean not only a tower but a loop-hole, and any sort of outwork, and that Cotgrave, under the same word, says—"Some hold it to be a scutrie, scout-house, or hole;" he suggested it as probable that the figure before us was intended to represent, not a tent, but the barbican described by Oliver de la Marche, with flames coming through the centre. Mr. Planché afterwards went to the ruins of the Castle of Tournheim, in Artois, the residence of Anthony, and there he found the same badge on various portions of the building, notice of which he communicated to the *Gentleman's Magazine*, with the accompanying cuts, (figs. 2, 3, 4, and 5), for the use of which we are indebted to our esteemed contemporary.

There can be no doubt, as I think you will agree with me, of the correctness of the supposition, that Montfaucon evidently did not understand the bridge he described: you will see that it is much more like a penthouse of wood to protect an opening in castle walls than a tent or flag. Figure 5 is a drawing of a movable tower of the fifteenth century, from a MS. in the British Museum, which shows, in the upper part of it, just such an arrangement as a protection for archers, and illustrates what were really understood as barbicans in early times.

Other instances, however, can be adduced. There is an exceedingly interesting illuminated MS. in three volumes, preserved in the British

the city, called in some language a barbican, as a *bikening* is called a beacon."

In the "Promptorium Parvulorum," written circa 1440, recently edited by Mr. Way, "barbican" is explained as "by-fore a castelle, Antemurale." The editor says in a note—"Spelman explains the barbican to be "*munimen à fronte castris, aliter antemurale dictum; etiam foramen in urbium castrorumque moenis ad trahendi missilia. Sax. Burgen-kenning. Vox Arabica.*" Pennant asserts that the Saxons called the barbican to the north-west of Cripplegate, *burgh-kenning*; other writers have suggested a different etymology. A. S. *burk-beach, urbis specula*. Bullet would derive it from the Celtic, *bar*, before; *bach*, an enclosure. Lye gives barbican as a word adopted in the Anglo-Saxon language, and we must certainly not seek thence its derivation."

As early as 1232, according to Britton's "Architectural Dictionary," we find in a charter, "*Antemurabi qui dicitur barbacana, qui est murus brevis ante murum nostri orti.*"

Spenser, in the "Faerie Queene" (b. ii.), has—

"Within the *barbican* a porter sat,  
Day and night duly keeping watch and ward."

And Ben Jonson uses the term in his "Epithalamion,"—

"That far all-seeing eye could soon espy  
What kind of waking man He had so highly set,  
and in what *barbican*."

\* Quoted in Knight's "Cyclopaedia."

An anonymous writer of the time of Henry the Fifth, in the British Museum, quoted by Sir (then Mr.) Harris Nicolas, in his "History of the Battle of Agincourt" (1415), describing the fortifications of Harfleur, says, "before the entrance of each of the three gates, the prudence of the enemy had erected a strong defence, which we term a *barbican*, but commonly called bulwarks: that towards the king was the strongest and largest, being defended without with round, thick trees, nearly to the height of the walls of the town, fastened around, bound, and girded together very strongly. \* \* \* \* The structure of it was round, containing more in diameter than the cast of a stone, with which our common people in England are wont to amuse themselves by the road-side: water of great depth and breadth surrounded it, being about two lances' length broad in the narrowest part, having a bridge for ingress and egress towards the town."

And Lydgate has in his "Story of Thebes,"†

"And made, also, by werkmen that were trew,  
*Barbicans* and bulwerkes, strong and new,  
Barrees, chaines, and ditches wonder deepe,  
Making his suow the city for to keepe."

The extracts I have quoted refer to the barbican mainly as a watch-tower or outwork of defence, and this is the idea which generally attaches to it. In a letter, however, addressed

\* Johnson, Broole-street, Holborn.

† Quoted, Oxford Glossary.



Museum, written in French prose by Robert de Borron and Walter Mapes,\* and which was made known to the general reader by Mr. Wright, in the first volume of the "Archæological Journal," p. 301. The date of it is probably 1316. Some of the illuminations in this show [as you may see on the annexed copy of one of them, fig. 6] these barbacans exactly like the badge of Anthony of Burgundy.

In all the cases, too, that I observed when looking through the MS. these penthouses are on the outermost work and over the gateway, so that I think we may say these were really the original barbacans, and that afterwards the name took a wider significance in England, and came to express also the outer work, either of wood or stone, to which they would have been attached. Abroad, however, it was less so. Florio, in his Italian Dictionary, 1598, explains *barbacane* to mean only "an out-nooke, or corner standing out of a house; a jettie."† And a jettie in mediæval buildings we know was a part of a building that projected beyond the rest, and overhung the wall below. The projection of an upper floor beyond the lower, which we see in old houses, was called a jettie. The only meaning given by Roquesfort in his "Dictionnaire Etymologique de la Langue Francoise," is "Fente perpendiculaire pour l'écoulement des eaux; ouverture pour tirer sur l'ennemi sans se découvrir," and in any ordinary French dictionary the only translation of the word *barbacane* is, "a hole made in a wall from space to space, thereby to drain the water; also a loop-hole in a wall to shoot through." This view is further borne out by a translation of Grosteste's "Chasteau d'Amour," in a MS. of the end of the fourteenth century,‡ wherein a castle is described, and which goes on thus:—

"This castil is ever ful of love and of grace,  
To al that any nede has socour and solace,  
Four toures ay hit has, and kernels fair,  
Three bailies al aboute, that may notz apair;  
Nouthir herit may wele thinkn no tung may  
wel telle,  
Al la boutné and the bewt of this ilk castelle.  
Seven barbacans are sette so sekirly aboute,  
That no maner of shoting may greve fro  
withoute."

A description which evidently refers to such penthouse defences as I have described, and not to watch-towers or outer works.

I will simply add, that the MS. from which the illustration, No. 6, is taken, contains many curious illustrations of the architecture of the period, as well as of its manners, and deserves further examination.

GEORGE GODWIN.

#### THE BRITISH MUSEUM.

The alterations which have been made while the Museum was closed last week, will be satisfactory to the visitors of the reading-room, although the novelty of arrangement in the contents of the book-cases may at first prove a little bewildering; this, however, is soon surmounted, and the removal of the absurd wire-guard fronts is as great an improvement, almost, as the means which have been taken to give light to the sides of the rooms under the windows, by inserting iron gratings in the floors of the galleries: it is a reproach to the trustees that these steps in the right path have been delayed so long.

The contents of the book-cases have been considerably altered, and Mr. Panizzi has not only improved their arrangements, but has considerably withdrawn nearly all the old lumber and replaced it by books of standard reference. The parliamentary and law papers, with the *Gazettes*, occupy nearly their old station and three sides of the left-hand room on entering; the fourth, or end opposite the entrance, is supplied with books on general and English history, in four cases; state papers, one case; and the remainder by topographical history.

In the right-hand room, four cases are given to biography and travels; then follow the encyclopedias and dictionaries, in their old places; English classics are being arranged,

and are followed by the ancient authors in their old position.

Ten cases are given to magazines and reviews; two to the Bible; two to church history; thirteen to transactions of societies; two to heraldry; and the remainder to calendars, directories, &c.

But the most gratifying announcement that we have to make is, that three sides of the left-hand room are now occupied by the catalogues, and that the reader will now find a catalogue of all the works in the library. Two copies of a "supplementary" catalogue, each in 153 volumes, are placed one on each side of the old 70-volume catalogue, in a manner calculated to obviate crowding and to give easy access to any letter. The number of volumes is, in our opinion, a benefit, as it divides each letter into more portions, and renders it almost impossible that a reader can monopolize it, as was often the case in former times.

It is calculated that the new arrangement gives, by removal of desks, &c., seats for twenty more readers in those crowded rooms (which we hope to see changed for more commodious buildings, as has been proposed, and that soon); and that the arrears of books not accessible, i.e. not in the catalogue, do not now exceed a thousand in number.

#### WESLEYAN SCHOOLS, BURSLEM, STAFFORDSHIRE POTTERIES.

On Wednesday, the 4th inst., was laid the corner stone of the above schools by Thomas Farmer, Esq., of Gunnersbury-house, Middlesex, amid a large concourse of people. The trowel used was a memorial of the staple trade of the potteries, consisting of a blade of porcelain, diapered with mazarine blue and gold, with a view of the intended building in the centre of the obverse, and on the reverse the presentation inscription: the blade is enclosed in a chased silver rim, with "forget-me-nots" and ribands intertwined at intervals; the handle is of amber glass. The china, with its painting and gilding, was the gratuitous work of Messrs. Alcock, manufacturers, in the town; the silversmiths' work was by Birmingham artists.

The building will be of brick, from a design by Messrs. Ward, architects, of Hanley, in the Italian style. It will consist of an arcade of six large arches in the main front, with two tiers of windows, relieved by stone dressings and strings. The entrances will be at the ends. The ground-floor will consist of a school-room 65 feet 4 inches by 35 feet; two good-sized class-rooms, with staircases, washing-closets, and water-closets at each end. Two other good class-rooms will be gained, one at each end, in a mezzanine story, effecting thereby a considerable saving of space. The upper story will consist of one large school-room, 75 feet by 35 feet, and will have an open timber roof, with iron tie-rods, and arched timbers, giving height to the rooms. The lower school-room will have an elevation of 17½ feet clear height, and the upper one of 22 feet clear height. There will be a firing vault under one end, in which Hazard's apparatus will be fixed, with which will be combined a system of ventilation.

#### GAS.

The right way to ensure an extensive consumption of gas in private dwellings is now about to be adopted, it appears, by the Great Central Gas Consumers' Company, who have advertised that they "are ready, at their own expense, to supply services and meters to the gas consumers in the city of London,"—charging, of course, a small per centage separately for the accommodation. In saying so, however, we trust we do not give them credit for more sagacity than they really manifest; for the terms of their advertisement are certainly equivocal: "at their own expense" may refer to "the gas consumers," and not to "the company." Another form of advertisement ought to be issued if the company really design to adopt a system which is said to have already worked so well in the provinces.—The Chartered and the City Companies, it is said, have threatened to reduce their prices down to 3s., or even less, if the new company sell at 4s. The result of such a line of pro-

cedure, we will venture to anticipate, will be very different from what may be either designed or dreaded. The new company have almost completed the laying of their pipes throughout the City, and they, too, already speak of reductions of price, offering, indeed, a deduction of 8d. per 1,000 feet, on certain conditions, to all who shall open accounts with them previous to the 29th instant.—Another grand American invention or discovery in gas-lighting has been announced,—namely, the production of a pure and cheap gas by inserting into a red hot retort a hollow cylinder, or case, filled with naphtha, which is immediately changed into permanent gas of twice the density of coal gas, and requiring a very small burner to yield a very brilliant light. A patent, it is said, has been taken out for this invention by a Dr. Gesner, of Halifax, Nova Scotia.—As to Paine's process, it remains in as much doubt as ever. Several gas engineers employed by companies examined it in Mr. Paine's absence, but besides insinuations and suspicions in regard to what they did not see, their evidence militated rather in its favour than otherwise. They were convinced that pure hydrogen gas was produced,—that it passed through a bottle of turpentine,—for its carbonization as was alleged on Mr. Paine's part,—that carburetted hydrogen did come out of that bottle and burnt brilliantly,—that when the pipe entering the bottle was withdrawn, they satisfied themselves that the gas contained in that pipe was hydrogen, but that when they replaced the pipe (the question is to what extent, or whether they did so fairly and properly), they found that the hydrogen remained pure, or ceased to be carbonized, judging merely by the aspect of the flame produced, which, however, Mr. Paine's son or brother insisted, on the other hand, was brighter than the mere hydrogen before ignited. There the matter appears to rest, except that unworthy motives were attributed to the individual present on the part of Mr. Paine. Considering what has occurred in this country, however, when gas engineers employed by companies were called upon to give evidence as to new processes and cheap gas, such parties are at least obnoxious to the like suspicions, and are by no means the proper arbiters in a case such as this. If we have doubts on the subject, as we have all along had, they are not likely to be either confirmed or removed in this way.

#### HATCHMENTS ON HOUSES.

There are many who look on these heraldic decorations as mere general emblems of mortality, indicating nothing more than that a death has lately occurred. Yet we can, on making ourselves acquainted with the simple rules by which the arrangement of the several achievements is regulated, at once know what rank the deceased held when living. If the hatchment be that of a lady, whether she was unmarried, a wife, or widow; if that of a gentleman, whether he was a bachelor, a married man, or a widower.

To show how easily this information can be acquired, we shall briefly state the several distinctions, as set forth in the introduction to "The Heraldic Register for 1849-50," by Mr. J. Bernard Burke,\* whose able and continuous labours in a similar path are well known:—

"On the morning of interment a hatchment is placed on the front of the house belonging to the deceased, and another over the vault or tomb after burial.

The funeral escutcheon of a bachelor represents his paternal arms single, or quartered with those of his mother, and accompanied with the helmet, crest, and motto. The ground of the hatchment (the vacant canvas on each side of the shield) is black.

For a maiden, her paternal arms are placed in a lozenge, single or quartered as those of a bachelor, with no other ornament than a gold cord loosely knotted at the top of the lozenge. The ground outside the shield is, like the former hatchment, black.

When a husband dies, leaving his wife surviving, the ground on the dexter side of the hatchment (that is, the side of the escutcheon opposite the left hand of the person looking at it) is black; and that on the sinister side (opposite the right hand of

\* Additional MSS. Nos. 10,232, 10,293, and 10,294.

† Quoted in *Promythorion*.

‡ MS. Bibl. Egerton, in MS. Brit., No. 923, as quoted in *Archæological Journal*, ut supra.

\* The Heraldic Register, 1849-50; with an introductory Essay on Heraldry, and an Annotated Obituary. By Mr. J. Bernard Burke, author of "The Peerage," &c. London, Churton, 1850.



the spectator) is white. The arms in this case are impaled, that is, divided by a perpendicular line down the centre of the shield; those of the husband at the dexter side being black, to indicate his death. The crest is placed over the shield, and beneath it the family motto.

When a wife dies, leaving her husband surviving, the ground of the hatchment is black on the side opposite to the right hand of the person looking at it; at the opposite side, white. Their arms are displayed as in the preceding case, but without crest or motto, and the shield appears suspended by a ribbon in a bow, and ornamented with a cherub's head and wings.

The hatchments of ladies (except peeresses, who are entitled to a robe of estate) are invariably painted without mantle, helmet, crest, or family motto, although funeral words and sentences are sometimes introduced.

A widow's hatchment represents his arms with those of his wife in the same manner as when living; that is, impaled, or divided by a perpendicular line down the centre of the shield. Its crest and motto are also emblazoned, and all the ground outside the escutcheon is black.

The hatchment of a widow represents her arms impaled with those of her husband, and enclosed in a lozenge, having a bow of ribbon at the top, and ornamented with a cherub's head and wings; all the ground outside the shield being black.

For a man leaving a second wife, the hatchment represents his arms (not impaled) on a black ground. On the dexter side, or that opposite the left hand of the spectator, is placed, apart from the shield of the husband, a small funeral escutcheon, on which his arms with those of his first wife are impaled; all the ground at this side of the hatchment being black, to indicate her decease. On the opposite side of the hatchment, that is, facing the right hand of the person looking at it, another small escutcheon is similarly placed apart from the husband's shield, and on it are displayed his arms impaled with those of his second wife; the ground at the extreme sinister side of the shield being white, to show that she survives him.

If a widow or bachelor be the last of his family, a skull or death's head (heraldically termed a *mort*) is annexed to the escutcheon, the arms, crest, and motto being displayed in the manner already described; and the hatchment of a maid or widow who is the last of her house represents the arms in a lozenge, with a *mort* annexed.

The hatchments of peers and peeresses have their distinguishing coronets.

On the hatchments of baronets a front-laced open helmet is placed over the shield, on some part of which is displayed the red hand.

The armorial bearings of knights are surrounded with the insignia of their respective orders, and surmounted with the front-faced open helmet, which is also assigned to knights bachelors.

Archbishops' and bishops' hatchments represent their arms impaled with those of their diocese, the latter being placed on the dexter side, that is, opposite the left hand of the person who looks at it; consequently the opposite side is painted black, that under the arms of the see being white.

The hatchment of the lady of an archbishop or bishop represents two shields; that to the left of the spectator displays the arms of the diocese impaling the paternal coat, and surmounted by the mitre. The sinister shield (that to the spectator's right) is suspended by a knot, bearing the prelate's family arms impaled with those of his wife; the surface of the hatchment underneath the sinister shield being black, to denote the lady's death.

The same rule is observed with respect to the hatchments of ladies of knights of the different orders, while those of peeresses who have married commoners display the arms of their dignity at the sinister side (that is, the side opposite the spectator's right) apart from the heraldic bearing of their husbands.

#### PASSAGE OF WATER THROUGH PIPES.

In the report of the Inspector of the Board of Health on the sanitary state of Altrincham, it is said that a 6-inch pipe, with an inclination of 1 in 60, will discharge 75 cubic feet of water per minute, or 675,000 cubic feet per 24 hours, which would be equal to the drainage of 14 acres of town land. This statement, I presume, is the result of experiments on the flow of water through pipes made under the direction of the Metropolitan Sewerage Commissioners, so inadvertently published, as it appears, by an officer of that establishment, in the *Mechanics' Magazine*.

The results of these experiments differ materially from that arrived at by the formula laid down by Hawkesley, in the reports of the Health of Towns Commission, where he gives the flow of water through a 6-inch pipe, with a fall of 1 in 60, to be only 52 cubic feet per minute, and the area it is capable of draining

being 0.5 acres of town land and 1 acre of rural district.

By a somewhat singular coincidence, Beardmore, in his "Hydraulic Tables," very recently published, arrives at nearly similar results, from similar data to that of Hawkesley, viz., 53 cubic feet per minute.

These, as you observe, are serious discrepancies, and may be accounted for in no other way than that the one experimented upon the flow of pure water through pipes, the others calculated upon the flow of sewage,—sewage, as you are aware, containing a great quantity of solid matter in suspension, that would materially retard its velocity, and consequently its discharge. If the experiments made in Greek-street were intended as a "practical illustration" of the flow of sewage in the drainage of a town, from the manner in which those experiments were conducted, viz., with pure water, the results arrived at must necessarily be erroneous, giving a greater quantity than if the ordinary sewage of a town had been used instead.

Phillips, in his evidences before the Metropolitan Commissioners, from close and lengthened observations, thinks that drains should be made of sufficient capacity to take 1 inch of rain-fall per hour, or 60 cubic feet per minute, in London, where the mean annual rain-fall is about 24 inches; while the annual rain-fall in the neighbourhood of Altrincham is much greater, being from 33 to 43 inches, and yet about 5 cubic feet per acre is considered to be the maximum quantity of water to be provided for in flowing off the surfaces even in times of storms.

These statements and opinions are so much at variance, that I have ventured to direct your attention to them, in order to have them elucidated, as they seem rather to perplex the practical man than otherwise, for whose benefit, I presume, they were more especially intended.

BAYLIS.

#### ENCROACHMENTS ON ST. JAMES'S AND THE GREEN PARK.

I WOULD ask what necessity there can be in looking at the plan for what is termed "improvements proposed in St. James's-park, opposite to Buckingham Palace," to put the country to an expense of about 15,000*l.*, when certainly 1,500*l.* would accomplish all that is required. It is proposed to alter the present line of iron railing to the enclosures of St. James's and the Green Parks, to which there can be no objection; but why, or for what reason, the present ornamental piece of water is to be destroyed, and encroached upon by a stiff, formal, and unsightly enclosure of iron railing, which is estimated at 15,000*l.*, it is utterly impossible to conjecture; there is nothing gained by it, and it is not of the slightest advantage either to the Palace, or much less to the public.

There is a sum of 6,116*l.* put down for iron railing, gates, &c., in front of the Palace. What has become of the expensive bronze railing put up by the late Mr. Nash? S.C.B.

#### PROTECTION OF ARTICLES EXHIBITED FROM PIRACY.

UNDER this title the executive committee of the International Exhibition Commission have issued a circular calling attention to the passing of the new Act promised by them for the protection of new designs, inventions, and manufactures from piracy while being exhibited at the great gathering of '51. After pointing out the advantages thus obtained for "original designs," however, the circular goes on to state, in the end of a paragraph, that "it is necessary that intending exhibitors should clearly understand that the provisional registration conferred by the new Act cannot be applied to the articles of new manufacture or invention, for which a protection by letters patent is necessary." In fact, the new act of grace "for the protection of articles exhibited, from piracy of the design," for which the circular itself reminds the reader that the commissioners promised that "arrangements will be made," turns out to be something like the play of "Hamlet," with the part of the prince himself left out. As observed by the *Journal of Design*, while thanking the Commons for small mercies, "all that the new law now

enacts for 'provisional registration' is, that ornamental designs and 'utility' designs may have it—a mighty work to engage the labours of Parliament—an Act to save the payment of fees varying from 1*s.* to 10*l.* which the Treasury already had power to dispense with, whilst unpatented articles, for which it would have been of real usefulness, are excluded,—after the Government had attempted to include them!

"But this was not all, for the preamble of the Lords' Bill, which set forth that it was expedient 'to encourage the exhibition of works of art,' was further mutilated in the Commons by the ungracious omission of these very words. Is the poor man, who cannot afford to purchase a 'patent' protection at 150*l.* to be invited to exhibit the fruits of his ingenuity and labour, and to be left to the mercy of pirates? Is the foreigner to be honoured as our guest that we may rob him? Is the pledge of the Royal Commission to be without meaning? We are in the dark for the present, and must leave manufacturers and inventors to seek a solution of these questions themselves."

#### MISCELLANEA.

THE NEW STAMP ACT.—The New Stamp Act, 13 & 14 Vict. c. 97, will come into operation on the 11th of October. It contains twenty-one sections, and a very long schedule of the new duties which will then be enforced. Among the provisions are several of a new character with reference to stamp duties. The allowance of "one and a half per cent." to sellers of receipt stamps is now repealed, and the former allowance of "seven and a half per cent. made." The stamp duties imposed by various statutes are repealed by the new law, and the duties are to be under the management of the Inland Revenue Commissioners. The stamp duties on leases for one year, and on bargains and sales, are wholly repealed. With respect to money received expressly for stamp duty, it is provided that persons receiving money for stamp duties, and misappropriating it, are to be liable to the Crown for the amount in the Court of Exchequer, which Court is empowered to enforce payment in a summary manner. For securing the payment of stamp duties penalties are imposed, with a proviso that they may be remitted if it be proved that the omission to stamp within twelve months arose from "accident, inadvertency, or urgent necessity." Documents in courts have been rejected on account of not having a sufficient stamp, and for remedy an additional stamp may now be affixed.—*Law Times*.

CAMBRIAN ARCHEOLOGICAL SOCIETY.—Among the papers read at the meeting at Dolgelly last week, was one by the Rev. W. Wynne Ffoulkes, M.A., on "The Site of the Last Battle fought between Ostorius and Caractacus, A.D. 51." He argued that the place was Bricclyn, on the borders of Montgomeryshire, and illustrated his opinion by maps and plans. The paper excited much interest; as also did one by the Rev. Longueville Jones, inspector of schools in Wales, on "The Reparation of Castles in Wales and the Marches"; and William Rees, Esq., Llandovery, read a paper which had been addressed to himself from the Ven. Archdeacon Williams, of Llandovery, explaining the view taken by the latter on the best mode of advancing Welsh literature and antiquities.

A NEW METAL.—According to a paper read before the Stockholm Academy of Sciences, a new metal has been discovered by M. Ulgren, and has received the name, "Aridium,"—intended, it may be, but rather unhappily we think, to contrast with "Iridium," another of this class of mongrel metals. Aridium is found principally in the chrome-iron ores of Reoras. Its oxides show some analogy to those of iron. Metallic aridium has not yet been obtained, so that its existence, after all, is merely inferred from analogy, though doubtless with quite sufficient reason.

LONDON MECHANICS' INSTITUTION.—A conversazione, in aid of the funds of this the earliest popular scientific institution in London, is fixed to take place on the 18th. This institution has strong claims on the friends of progress.



**SUBMARINE TELEGRAPHS.**—A correspondent claims for Mr. Walter Hancock, of Stratford, Essex, the first suggestion of a line of telegraph from Dover to Calais, and also the insulation of the wires, first, by India-rubber and shell-lac, and at length, on its introduction, by gutta percha. As to the latter point, we have at least always understood that Dr. Faraday first pointed out the insulating property of gutta percha, after which it was a matter of mere unmeritorious chance who might first think of applying it as an insulator to the electro-telegraphic wires. In the process of covering the wires, however, as now practised, there is certainly some ingenuity displayed: the wire with its covering, as a provincial paper observes, resembles a wax-taper with its wick—and a pretty long taper is the 30-mile stretch across the channel, burning, electrically, at both ends, and enlightening France and England at one and the same time. The idea of this submarine telegraph Mr. Hancock is said to have suggested to Messrs. Cook and Wheatstone in 1842.

**DAGUERREOTYPING IN AMERICA.**—It is believed that the present number of persons directly engaged as Daguerreotypists in the United States, is ten thousand; to which may be added at least five thousand who obtain their living from indirect connection with the art, by the manufacture of plates, cases, chemicals, and apparatus—or that the aggregate supported in the Union by this means, cannot be far short of fifteen thousand persons. According to the *New York Tribune*, Mr. Brady of that city, is about to establish a new and important improvement, viz., the process of taking pictures on ivory, by the aid of the Daguerreotype art.

**VENTILATION OF THE COURTS OF LAW.**—We understand that the Courts of Exchequer and Common Pleas at Westminster are about to be ventilated by the steam-jet.\* The arrangements are settled, and preparations are making by the office of Woods and Forests, under the direction of Mr. G. Gurney. Fresh air is to be brought in at a high level above the courts, and the vitiated air withdrawn by a separate jet from each court. The arrangements are to be carried out under the superintendence of Mr. Wm. Clark, late of King's College.

**ANOTHER SHAKESPEARE PORTRAIT.**—A painting was submitted to us last week which, if not a genuine portrait of our immortal Shakespeare, an assertion we would not venture to make, is, at all events, an interesting picture. It is well painted; has a fine expression of countenance, with a beard and moustache, as in the Chandos and the Jansen portraits, and rings in the ears. The canvass, unquestionably old, has not been lined. On the top of the picture appear in raised letters, rudely formed with the pallet-knife and a composition of some sort, *Gulielmo (sic) Shakspeare*, painted over with the field of the picture. Below the name, on the left-hand side of the head, is *Æt. 47*; and on the right-hand side, *A.D. 1611*. The picture belongs to Dr. Parkes, of Great Marlborough-street, in whose possession it has been for some years, unregarded until a few days ago.

**GREAT IMPROVEMENTS IN FARRINGTON-STREET.**—By an Act passed during the last session of Parliament for making fresh charges on "The London Approaches Fund," the commissioners for the Farringdon-street and Clerkenwell improvements are empowered to raise 88,000*l.* on that fund, and the Improvement Committee have been instructed to carry out the purposes of the Act without delay.

**BRISTOL ATHENÆUM.**—The members of this thriving institution, finding their present accommodation in every way now too much straitened for them, have unanimously resolved "to obtain estimates of the cost of, and the plans for, a new Athenæum building, and that the plans for the erection of the building shall be thrown open, by advertisement, for public competition."

**VENERING: A ROYAL KNOT.**—At 103, Newgate-street, it is said, is to be seen a mahogany veneer knot with a profile of her Majesty in it, "so true that all acknowledge the resemblance."

**LUCIFER MATCHES.**—According to Mr. Mayhew, in the *Morning Chronicle*, in one steam sawing mill, visited by him, the average number of splints made for lucifer matches is 156,000 gross of boxes a year, each box containing fifty splints—altogether sixty millions of matches. For the manufacture of this quantity 400 cubic feet of timber are used in a week, averaging eight trees, or 400 large trees a year for lucifer matches only, in one mill. It is no longer a joke to say a man who deals in matches is a timber-merchant.

**THE PARKS.**—Public attention has been directed, by *The Times*, to the state of the parks, and the amount of money expended in name of them, though not on them,—an amount which the late Mr. London, the horticulturist, declared to be sufficient to convert them into beautiful gardens, and keep them so, if expended every year with ordinary judgment and in a right direction. Even on the present imperfect scheme they are badly kept up, trees falling into premature decay, drainage wanted, &c.

**WIDE ESTIMATING.**—We send you with this the amounts of tenders received for the Bursledon parsonage-house, offices, and stable building. Messrs. Hinnes and Bedborough, architects. Quantities were not supplied. The difference is startling.—A. B.

Burton (London).....	£2,791
Pink (Nickham).....	2,175
Fry and Newton (Bitterne).....	2,150
Newman (Botley).....	2,115
Bedborough (Windsor).....	2,007
Bull and Cozens (Southampton).....	1,996

**PEEL MEMORIALS.**—It is proposed to unite the suffrages of the various Peel Memorial Committees, in an endeavour to realise the sum of 124,000*l.*, required to complete the fund necessary for erecting churches in the remaining eighty-six of the new districts formed under Peel's Act for subdividing populous parishes. These it is proposed to call the "Peel District Churches," and in each to erect a tablet to the memory of the late baronet. A central memorial committee has been appointed to procure contributions.

**RETROGRESSION OF PLASTERERS.**—There is a house in Feversham having ornamental plastering for the outside front in firm and good condition, bearing the date of 1699, thus showing that it has been done 151 years. At another, in the same place, erected only two or three years since, the first plastering entirely failed, upon which it was removed, and replastered; the second plastering also failed, and it has now been partially done a third time. This house, however, faces the south-west, whilst the first-mentioned faces the north-east; but there is another house in the town having ornamental plastering for its front, and in excellent preservation, bearing the date of 1697, thus having stood 153 years, and faces the south-west.—*Morning Herald*.

**ASSOCIATE LABOUR CONFERENCE.**—At Manchester, a number of delegates have assembled to discuss mutual interests, "so as not to give offence to any party or class." Amongst them is one from the stonemasons, who, in a preliminary discussion, stated that they were organised throughout England and Wales. They paid about 2,000*l.* a year to tramps. They had also an accident fund. From this fund they allowed members who might be disabled for life 80*l.* to start them in business. If a member was killed, they gave his widow 8*l.* for funeral money, and 40*l.* towards establishing her in business. The subjects proposed to be discussed are—wages—co-operative association and mutual exchanges—land cultivation, &c.

**FALL OF THE BRICKLAYERS' ARMS STATION.**—Sir,—Had the poor man who was killed by the fall of the above station been run over by a coal-waggon or drunken cabman, would the coroner have told the jury they were not to look at or examine the cause, but only the effect? What an outcry we should have had from some of the great men at the London-bridge station! It must be satisfactory to the public travelling by the line to see you have taken the matter under your practical surveillance, and, as one of them, I write to thank you. Will you be good enough to look in at the London-bridge station, and the public will thank you again, as you may save a few lives at that net-work some day? I give my name,—AN ADMIRER.

**WESTBOURNE SCHOOLS.**—On Saturday week the first stone of the Westbourne Schools, Westbourne-park, Paddington, was laid by the Hon. Arthur Kinnaird. Mr. F. W. Porter, of Charlotte-street, Bloomsbury, is the architect to the building, which will be of fire-proof construction. The style is Domestic Tudor, and the cost, including fittings and enclosure of site, about 2,500*l.* The contract has been taken by Messrs. Winsland and Holland. As yet the subscriptions fall far short of the sum required.

**ARCHÆOLOGICAL DISCOVERIES AT BURGH CASTLE.**—Sir J. P. Boileau has not been idle since he purchased, and thereby saved, this famous old Roman fortification. To the liberality of the worthy baronet the antiquarian world is indebted for some interesting discoveries recently made in the course of excavations for some time carried on under the superintendence of Mr. H. Harrod, the secretary of the Norfolk Archæological Society. The question as to whether the western side of the camp, which overhangs the banks of the river Waveney, was ever enclosed is now set at rest, the foundations of a wall having been ascertained to exist. One of the gates has also been more perfectly developed, and an apartment 17 feet square found upon the inner side of the south wall.

**RATING IN REGENT-STREET.**—Several of the residents in Regent-street have allowed themselves to be summoned to the Court in Marlborough-street, in order to ascertain the grounds on which the recent rating has been based, the Woods and Forests having made a great advance on the previous amount. Complaint is also made of inequality, and a case will be taken to the Quarter Sessions.

**ST. STEPHEN'S, WALBROOK.**—With reference to our notice last week of the intended works here, the architect informs us that the window about to be opened is the east window which was bricked up in 1796, and not one in the transept. For the screen at the west entrance, he has the original drawing.

**THE NEW HOUSE OF PARLIAMENT.**—presents a melancholy appearance. It is gutted to the bare walls and iron floor-joists. Some correspondents are very angry with us for not abusing Mr. Barry for the failure: we desire, however, to know something more of the right and wrong of the case.

**METROPOLITAN SEWERS COMMISSION.**—A monthly general meeting was with some difficulty, and after considerable delay, got up last week, at which, after various works were ordered, it was stated that with a view to provide adequate drainage for the International Exhibition Building, the commissioners had requested permission of Mr. Alger, a builder, to drain it into his sewer, lying between the Knightsbridge Barracks and Kensington. Mr. Alger had accorded permission gratis for one year, but thought he should be remunerated for a continuance of the drainage for a further period. The court accepted the offer, which was passed in the usual form. It was then ordered that the reduced sheets of the Ordnance map, on a scale of 12 inches to a mile, be sold to the public at 2*d.* a sheet, the map comprising forty-four sheets in all. A suggestion has been made to the Court to convert the Thames Tunnel into a connecting sewer!

**THE MARBLE ARCH AT BUCKINGHAM PALACE.**—Workmen have been for several days engaged in taking down the marble arch. They get on but slowly, care being taken, seemingly, to remove the structure without injury. A square enclosure near the palace has been formed for their deposit in the meantime.

**BLACKFRIARS BRIDGE** has given a further intimation of its sinking state. One arch is fairly cracked in the crown and visibly flattened, while another has exhibited symptoms of also giving way. Men have been engaged with a diving-bell in examining the foundations. They ran an imminent risk of their lives on one occasion from collision of the barge with another while the bell was below water.

**IRON TRADE.**—The masters are still diminishing their make, without the slightest prospect of improvement in their sales, much less their prices. The Scottish pig-iron trade, which it was attempted to show up as something like an exception to the general dullness, has been found to be in a very unsound state, bolstered up by a sort of scrip for the nonce.

\* At the Polytechnic Institution, Regent-street, Mr. Bachoffner is delivering a very interesting lecture "on a jet of steam," which some of our young readers would find instructive as well as amusing.



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# The Builder.

No. CCCXCVIII.

SATURDAY, SEPTEMBER 21, 1850.

**N** more than one occasion we have urged our young readers to lose no opportunity, during the long days, of seeing such works of nature and of art as are accessible to them. We have said, and we say again, see all the finest buildings, and the grandest views, and the best pictures you can get at: by accustoming the eye to what is good, it will be gradually led to reject what is bad. When you have a leisure day get off to some of the old churches near you, or to one of our cathedrals, and fill your note-book and your sketch-book with records of what you see and what you think: such jaunts invigorate the body, give tone to the mind, and enlarge the store of materials on which it may afterwards work. Professionally, too, it is of the utmost importance that we should see what the best masters of our art have done, so that we may begin where they have left off. The dwarf on the giant's shoulders sees farther than the giant. "In every pursuit of art or science," said the late Sir Martin Shee, in one of his addresses to the Academy,\* "it is essential that we should, as early as possible, make ourselves acquainted with what has been done by those who have preceded us in the same career. If we neglect this, we invariably over-estimate our attainments;—we forfeit all the advantages which result from the accumulated experience of ages, and fancy that we have made great progress in our journey before we have achieved even its first stage.

"In the arts of imitation, particularly, the acquisition of this previous knowledge is of the utmost importance. In the darkness of ignorance, the first dawn of talent appears to be broad day; and the manufacturer of a wig block, who has never seen a higher effort of sculpture, will consider himself a skilful artist. When we have clearly ascertained, by the contemplation of celebrated works, all that the powers of genius have been competent to perform, we see at once what is required of us—we see what is attainable in that which has been attained. We are no longer satisfied with the slow pace of individual progress, but prepare to move on with the great collective mass of talent. The mist of self-delusion is dispelled, and we measure ourselves by a standard that reduces us to our proper dimensions."

We had a few hours to spare the other day in Somersetshire, during the pause of a business, and a good-natured friend who knows we practise what we preach in this respect, and are always anxious to see, however slightly we may be able to profit by what we see,—offered us the means of refreshing our recollections of Chepstow and Tintern. Shakspeare supplied us with an answer,—“We greet thy love,—not with vain thanks, but with acceptance bounteous, and we will upon the instant put thee to it.” And so in half an hour we were off, rattling through part of Gloucestershire to the Aust passage, where a boat took us across the Severn to the Monmouth side, not without convolutions, to avoid the current, sufficient to make a bad sailor wish that the projected bridge here had been carried out. The most difficult part of

such a work would probably be to obtain a sufficient return, in a pecuniary sense, for the money expended.

Chepstow, as most of our readers will recollect, is on the Wye, near where that river enters the Severn, and it is the close neighbourhood of these two streams which renders the views around so singularly beautiful as they are. That from the Windcliff, for example (justly celebrated), is equal to any thing of its kind in or out of England,—a glorious combination of cliff and cleft, wood and water. There is a natural amphitheatre of hills here, tree-covered, and the Wye steals round the inner circumference; beyond is the Severn, and far away in the distance are the Cotswold hills,—

“Dusk, yet clear;  
Mellow’d and mingling, yet distinctly seen.”

An extensive view is not without a saddening effect on the mind,—a saddening which chastens. Southey has touched one source of this feeling where he says:—

“When I have gazed  
From some high eminence on goodly vales,  
And cots, and villages, embowered below,  
The thought would rise that all to me was strange  
Amid the scene so fair, not one small spot  
Where my tired mind might rest and call it  
Home!”

Tintern Abbey is about seven miles from Chepstow, also on the Wye, and, like the other Cistercian abbeys, is in a beautiful valley. As Byron says of Newstead,—

“It lies a little low,  
Because the monks prefer’d a hill behind,  
To shelter their devotion from the wind.”

Like all the churches of Cistercian abbeys, Tintern is dedicated to St. Mary, and is in plan a Latin cross. The roof and low tower at the crossing have fallen, but the rest of the building remains in a fair state. The abbey was founded in 1131, but the style of the remains of the church is the Geometrical, or what used to be called Early Decorated, and they are to be ascribed, therefore, to the latter part of the 13th century.\* It is all of the same period and accordant; the west window is very beautiful,† and so, indeed, are all the details. It is distressing to see so fine a building roofless and exposed:—

“And questionless here, in these open courts  
Which now lie naked to the injuries  
Of stormy weather, some men lie interr’d  
Who lov’d the church so well and gave so largely  
to’t,  
They thought it would have canopied their bones  
Till Domesday. But all things have an end.  
Churches and cities that have diseases like to men  
Must have like death that we have.”

The east window has disappeared;—as we are in a quoting mood we might say with a poet mentioned just now,—that

“A mighty window, hollow in the centre,  
Shorn of its glass of thousand colourings,  
Through which the deepened glories once could enter,  
Streaming from off the sun like seraphs’ wings,  
Now yawns all desolate:”—

but if Mr. Sharpe be correct in the remarks made in his recent excellent paper on Furness Abbey,‡ the glass was probably not painted. In many other respects, the asserted characteristics of Cistercian buildings are borne out by Tintern. There are no sculptured figures; and the chapter-house, the refectory, the hospitium, or guest-house, &c., all follow the usual arrangement. The apartment which we suppose to be the hospitium is 85 feet long and 28 feet broad, and has, like that at Furness, a central range of columns to carry the vaulting. The refectory, which is 84 feet long and 34 feet wide, has in the centre of the west side a

vaulted and groined niche, as a reading place about three feet above the floor of the apartment.\* The buttery-hatch remains. In the north transept of the church, the flight of steps may be seen which communicated with the domestic portions of the establishment, and enabled the monks to visit the church without going into the air.

The width of the nave of the church, inside the walls, with the two aisles, is 75 feet 2 inches; each aisle is exactly half the width of the central space. The whole length of the church, inside, is 228 feet, or three times the width. The transept has an aisle on the east side only (as at Furness, Fountains, and other places), which was formed into chapels. The width of the transept, including the aisle, is 53 feet 10 inches, and the extent from north to south is 151 feet 2 inches, or again nearly three times the width. The church is peculiar in this, that there was a low stone wall connecting the main columns of the nave and chancel, so as to cut off the aisles. The height of the nave to the vaulting was 66 feet, but there was a chamber above this: and the height of the west-front externally is nearly 100 feet.†

A portion of the original tile-paving remains in the south aisle of nave, and includes some very good patterns, most of which, however, have been engraved. It is suffering from weather, and should have a penthouse covering. There are two very interesting crosses, also, just outside the church, which are much injured through lying in a gangway. They are of the fourteenth century: one of them, inscribed, *Jacet Henricus de Lancant quondam abbas de voto*, has a pastoral staff.‡ There are several other monumental slabs scattered about,—further evidences of the wonderful variety with which the mediæval sculptors expressed their one leading idea in such works,—the cross.

Tintern Abbey, as well as Ragland Castle, Chepstow Castle, &c., belongs to the Duke of Beaufort,§ and it is gratifying to learn that his Grace manifests a laudable anxiety for the preservation of these interesting specimens of our ancestors’ architectural skill.

Chepstow Castle has several points of interest: the earlier portions of it, including the lower story of what is called the chapel, are of the Norman period, but the insertions and additions of a later date over-ride these. There is an almshouse in the chapel; one of the chimney shafts deserves notice; and the battlements of the keep show carved figures, rising out of the merlons,|| as at Alnwick. The ruins occupy an extensive area, and are situated most picturesquely.

Remembering that Rickman calls Chepstow Church “a very fine specimen of good Norman,” we expected more than we found there. And yet Rickman may have been right, for the church has been restored in most prosaic fashion, and now exhibits little to interest the student. It is a cross church of considerable size: the lower part of the tower, Norman in style, is open, and forms a porch to the west entrance. The interior of the church, with its flat drawing-room ceiling, and huge wooden quasi Norman pulpit, is very unsatisfactory.

\* Our readers will remember the pulpit, or reading place, in the refectory at Chester Cathedral, engraved in a previous volume.

† Tintern is very fully and admirably illustrated in Sharpe’s “Architectural Parallels.” The west entrance to the church is divided into two archways, under a circumscripting arch, and presents in the spandril over the central column, the *vesica piscis*.

‡ These slabs are engraved in Mr. Cutt’s “Manual for the Study of Sepulchral Slabs.”

§ It was granted in the 25th of Henry VIII. to Henry, the second Earl of Worcester.

|| The rising parts of a battlement. The spaces are called *embrasures*, or *loops*.



But we intended gossiping, not grumbling, and so will here close a brief record of a pleasant trip.

#### SOME CONTRIBUTIONS TO THE ELUCIDATION OF THE CONSTRUCTIVE DETAILS OF SANITARY ARCHITECTURE.

THE sanitary movement is undoubtedly one of the most important social questions of the age; for some years it has taken up the attention of our legislators and philanthropists; a large mass of evidence has been industriously collected, and there has been presented an amount of proof "altogether irresistible," of the necessity there is for some practical measures to be introduced. And since it has been fully proved that the present state of matters cannot exist without incurring danger to our social condition, men eminent in their respective professions have begun to direct their attention to the carrying out of efficient remedies. Architects and engineers consider the question as closely connected with their professions, and look upon the field thus opened up to them as one of immense importance. The present state of society and the force of public opinion demand imperatively from them, "as absolute and indispensable arrangements, all those combinations commensurate with the claims of humanity," and it is by their "professional skill and experience that such measures can alone be effectively realized."

With very few exceptions, it has been the practice to "run up" structures without the slightest regard to the real comfort of the inhabitants. Healthy structural arrangements are, however, fast becoming to be considered as of paramount importance; and as, in all likelihood, legislative enactments will soon be enforced for carrying them in every case into effect, it has become a matter of necessity with builders, &c., to have a clear understanding as to the requisites for such improvements.

With a view to assist practical men in considering the improvements to be adopted in some of the various cases that may be presented to them, the following remarks have been drawn up:—

Before entering into the consideration of other matters, it may not be amiss to notice, very briefly, the importance of a good supply of light, with reference to the health of the inhabitants of houses, and the necessity there is for particular attention being paid to this point. Such remarks may be, by some, considered as altogether unnecessary. Parties are rather apt to blame the window-tax, as being the cause of all sins of omission and commission on this head. That there is truth in this statement, a glance at many of the houses around us, both in town and country, will amply prove. But it is not always so. Else why should window arrangements be made in such a way as to exclude a large portion of the light, which would otherwise be available? We could point out several houses, otherwise well arranged, in a great degree spoiled, gloomy, and cheerless, even when the sun is up, by the clumsy and ill-devised arrangement and construction of the windows. The slightest contrivance (of course, first prompted by a knowledge of the importance of a good supply of light) would easily have obviated this, and rendered the houses in every way faultless. We are now writing in a district not many dozen miles from a house the construction of which cost no less a sum than 32,000*l.*; and yet, would it be believed that the entrance-hall is so clumsily lighted that in broad day it is a matter of difficulty to distinguish its extent or the objects placed in it! And a handsome corridor is completely spoiled from the want of effective light. In one large establishment the whole range of servants' rooms was miserably lighted, by windows, mere pigeon-holes; and the sills so high from the floor that no one sitting could take advantage of a very delightful external prospect. But the same fault can be found with numerous houses—where the sitting-rooms are completely spoiled from high, small windows. Certainly the architects and builders who can commit such blunders can have no very clear idea of the importance, in a sanitary point of view, of a good supply of light, as we cannot

conceive of their sinning willingly against the light of reason.

The result of the investigations on the subject of light has proved, that a close and intimate connexion exists between it and the performances of the higher functions of animal and vegetable existence. Plant a pea, for instance, in a dark cellar, what is the consequence? It takes root, and grows doubtless; but the shoots it throws out, are they vigorous, and possessed of that healthy green colour, the effect of the existence of healthy juices? No! pale and sickly the plant droops, growing still, but never arriving at fructifying maturity. As with vegetable, so with animal life: in many of our large towns are dark cellars and rooms, lanes, and alleys, in which the glorious light of day never enters, and which are inhabited by wretched beings,—the grown up, pale and sickly,—the young, stunted and deformed. Dupuytren, a celebrated continental physician, mentions the case of a French lady whose disease baffled the skill of the most eminent medical men. This lady resided in a dark room, in which the sun never shone, in one of the narrow streets of Paris. After a careful examination Dupuytren was led to refer her complaint to the absence of light, and recommended her removal to a more cheerful situation: the change was attended with the most beneficial results—all her complaints vanished. Returning to our illustration of the pea: in the cellar wall make an aperture admitting light; however distant the plant may be from this, it will instinctively draw near it, and on reaching it fresh green leaves will soon appear. And so in the case of hundreds of our fellow countrymen, who live almost without light; supply them with it, and many of their diseases will disappear. Certain it is that deficient light is a powerfully predisposing cause of disease and sickness.

We have already shown that there is room for improvement in the placing and construction of windows of the houses of the better sort. It is, however, in connection with those of the labouring classes that improvements are most desirable. In such places the requisites (of windows) to be considered are—cheapness of original cost, and easy repair of the frames when broken. Cast-iron frames seem to possess superior advantages over other materials; but strong galvanised iron may also be used with advantage. It would be well if a certain size of square could be universally adopted for certain sizes of frame for the houses of the labouring classes. One very obvious advantage of such an arrangement would be, that the exact size of glass would be manufactured; and being easily obtainable at a low rate, could be fastened in by the owner or occupier of the tenement, without the aid of a special workman. At present, "when glass is broken, recourse is had to the most unseemly substitutes; these may annoy the inmate at first, but he soon becomes habituated to them; one eyesore prepares him for another, and in a short time the same slovenliness and disorder spread over the whole establishment." In remodelling old tenements, we should recommend the owners to consider whether the plan of inserting cheap durable frames which could be kept up at small cost, would not be more economical than repairing the old cumbersome and expensive ones we too often see in these times of improvement. It would be well for mechanics to turn their attention to the improvement of this department, to the bringing out of a plan at once cheap in original cost, and easily maintained in repair. The fate of the abominable window-tax is, we believe, sealed; its abolition is now a mere question of time.

Pure and sparkling to the eye, agreeable to the taste, nourishing to the body, water, whether it murmurs in our country brooks and streamlets, flows in crystal streams in our inland rivers, gushes forth clear, cool, and bright from the hidden springs in rocky beds, or spreads itself out in liquid mirrors in the ponds and lakes of our inland solitudes, is one of the most precious gifts a beneficent God has given to man—a gift, the rare value of which cannot be over-estimated; and whether it be considered as a means of sustaining life, or as conducive to habits of cleanliness, a pure and plentiful supply to the inhabitants of our dwelling-places is absolutely necessary. Considered as an aliment, water forms an im-

portant constituent in the food of man; without it life languishes, and death arising from its want is one the sufferings and agonies of which are horrible in the extreme. The supply of water being in many of our towns notoriously deficient, is the cause of many evils, both physical and moral; habits of uncleanness amongst the poorer classes, both personal and domestic, are induced, which lead to recklessness, dissipation, and crime. It is a melancholy and striking fact, that in those districts in which uncleanness is most prevalent solely from want of water, crime most abounds and not only so, but disease in their filthy unwashed hovels is never absent.

From the agitation on the subject we hope to see the day when water shall be as plentifully supplied to the habitations of all classes throughout the kingdom as it is in the hills and chalk basins, valley streams, and mountain reservoirs, placed there for beneficent purposes, but to obtain which that labour demanded of all men must be first expended. And for no nobler and more useful purpose can such labour be bestowed. The benefits resulting from copious supplies of water need not be here enumerated, they are sufficiently obvious to all; but in connection with another important branch of sanitary improvement, the great value of such must not be overlooked. We refer to the efficient working of our drains and sewers. However efficient these may be in point of position and construction, it is evident that without an easily obtained supply of liquid, by which their contents can be removed, they cannot fail but to be almost totally worthless. Water, no matter whether "fair or foul," is the only sure and economical vehicle by which the matter from the houses can be speedily carried off. On this subject more hereafter.

The movements of all public bodies, legislative or otherwise, are proverbially slow and tedious, so that it will likely be some time ere we shall have the pleasure of seeing every house, no matter how low in the scale of society its inhabitants may be, provided with unlimited supplies of pure and wholesome water. In the meantime all means should be taken, not only for the economisation of the limited supplies which may be given to us, but also for taking advantage of that which Nature grants to all equally, whether rich or poor, "the just as well as the unjust,"—"rain-water." It is a notorious fact, that while the inhabitants of large and populous towns are maintaining lustily that they are woefully stinted in their supply of water, they allow to run to waste gallons upon gallons of valuable soft rain-water, without a single effort to retain a drop, while the inhabitants of other towns, "wiser in their day and generation," use all available means to catch and retain the descending showers. These are not designed to be regarded as useless, but are sent to fulfil important purposes—not less useful in the hard paved streets of our crowded towns, than in the plains and fields of our suburban districts. We have heard such woful waste justified, on the ground that the rain was allowed to run into the drains to cleanse and flush them. But it certainly is obvious that the same effect can be much better obtained by first using the water for domestic purposes, and thereafter sending it down properly-constructed openings, connected with efficient drains and sewers.

In the majority of cases, where tanks, cisterns, or barrels are used for the reception of the rain water, they are left open on purpose, as it were, to receive the decomposing and carbonaceous matters which generally float in the atmosphere above large towns. If a sheet of white calico be placed in the open air in a still day, in the midst of a densely populated manufacturing town, in a short space of time its whole surface will be found covered with sooty particles. Now this process is going on daily, and any one looking into the cisterns in the back yards of the houses in Manchester, Stockport, &c., will see a pretty thick layer of soot reposing on the surface of the water. Not content, then, with the matters which the water has taken up, in its passage through a sooty atmosphere, or over a sooty roof, the tanks or receptacles are left open, and no provision whatever is made for freeing the water by filtration from the particles thus imparted to it. It really is lamentable to think



that in this age of boasted improvements such an absurd arrangement is allowed to be carried into practice, without a trial being made to improve it. Were the desideratum to obtain water impregnated with sooty particles, we could not use more efficient means. To place a cover on the tanks would, to a certain extent, obviate the difficulty, but the surface of the tank for receiving water would then be lost. The next and most satisfactory method would be the adoption of some simple means of filtering. But the expense of this would be at once objected to: nevertheless, it would be easy to show that the original expense would be soon repaid. It would be a very amusing, if not altogether useful, task to calculate the waste of money occasioned by the filthy state of rain water, especially in the towns of Manchester and Stockport alone. To purify in some measure the disgustingly filthy water obtained from the cisterns, especially after or during rainy weather, flour is sprinkled in it, which carries the contained impurities to the bottom. This is one item of loss; others might be mentioned. Rain water from the heavens is the purest we can obtain; it is then the wisest course to fit up receptacles, by which this may be collected and kept as pure and uncontaminated as possible for the many domestic purposes for which it is so well adapted. We believe that such a contrivance can be cheaply fitted up to every house, and that the important advantages derived therefrom would be beneficial in many points of view. People are, however, very apt to say, "Oh, the amount obtained yearly is of such small extent as not to be worthy of the expense of collecting." "Now, there is nothing," as brother Jonathan says, "like cyphering." Mr. Dempsey says, "the roof of a house of the average dimensions of 20 feet square, presenting a plane surface of 400 square feet, receives at least 800 cubic feet of rain water annually, or about 4,800 gallons." Now this quantity is equivalent to nearly 133 gallons per day. We really wish every house in the kingdom had such a supply. But allowing only one half of this to be obtained, surely a sufficiently liberal estimate, it is certainly worth the collecting. The same writer says—"If well constructed and capacious gutters are provided, this quantity may be collected with little loss from evaporation, and will form a reserve stock for such special household purposes as it is specially adapted for. This quantity should be immediately received in a filtering tank, and the best available method be adopted of purifying it from the carbonaceous matter with which it becomes saturated in passing through a smoky atmosphere, and flowing over roof surfaces covered with a deposit of similar impurity. An economical and well-devised apparatus for effecting this purpose, and applicable to private and public buildings of all classes, is a desideratum yet wanting in the economical supply of water." As a slight contribution to the attempt to obtain such a valuable desideratum, we offer the following hints:—It must be an essential point in the construction of such a contrivance, that no lead shall be used in parts where the water is allowed to remain in, or even pass through. Slate is an admirable material, but it is heavy and cumbersome. Perhaps gutta percha would answer. A large cistern lined with this material will last a long time, will be cheap, and not in the slightest degree will it deteriorate the water. The pipes also by which the water is led to the interior of the house may also be made of this material. If the rain water is made to pass through filtering material made with coarse pounded charcoal and coarse gravel, it is "fitted for the use of the table, and from its solvent powers it makes tea admirably, with a saving of that commodity." A good filtering apparatus must be attached to the cistern. To allow of the water entering by the open surface of the tank or cistern, without exposing it to the following soot, a cover should be made, either of coarse canvass, wire gauze, or small perforated zinc plates. A wooden box should be made to fit loosely into the top part of the cistern, or it may lie on the outside edges; this box is provided with a perforated zinc bottom, a layer of coarse gravel is made to lie on this, in the inside of the box; above this, a layer of coarse pounded charcoal, then another layer of gravel similar to the first. A perforated zinc covering stretches across the

whole surface of the box; this not only prevents mechanical impurities from mixing with the water, but tends to diffuse the water (gushing from the pipe leading from the roof) over the surface: the water not gaining immediate admittance by the small holes beneath the pipe, is spread over the whole surface of zinc, and permeates through the body of the filtering material at all points. The filtering box, instead of being placed across the whole surface of the cistern, may be confined to one end only, but it will require to be made deeper; this, however, will not be of great consequence, as, if the whole water from the roof is made to pass through it, it matters not whether the lower portion of the filtering-box should dip into the water in the body of the cistern. If the box is confined to part of the surface only, a strainer cover should be stretched over the whole surface of the cistern. If the contrivance we have thus indicated should be objected to, on the score of expense, let the pipe from the large cistern communicate with the inside of a box provided with filtering material, this box hanging clear in the inside of an outer case, the filtered water being drawn off by a pipe below. This simple and efficient contrivance may be put in a corner of the scullery near the sink or slop stone; it may be made of zinc, to hold any requisite quantity of filtered water; the water from the cistern may be allowed to run slowly, yet continually, through a crane attached to the pipe leading from the cistern, so that the supply of filtered water may be kept up.

Rain-water may be retained for the purpose of flushing the drains, if not for domestic purposes. Mr. W. D. Guthrie was the first to propose a contrivance for this purpose. It consisted of a conical-shaped cistern, having, at its lower extremity, a valve opening into a pipe which led to the drain. A lever was fastened on one end of the cistern, and one end connected with the valve by a chain; by pulling down the end of the lever outside by a cord, the valve was lifted out of its seat, and the contained water in the cistern rushed down the pipe, effectually cleansing the drains. The surplus water of the cistern ran down by a pipe connected with the pipe leading to the drain, a little below the seat of the conical valve. This latter arrangement was defective, in so much as the gases of the drain had access to the atmosphere through the pipe. Mr. Hosmer's cistern could be adopted with advantage for such purposes. It "has a partition dividing it into two spaces, one considerably larger than the other, and containing the supply for domestic use, while the smaller space is intended to contain a reserve for cleansing the drains and sewers. A two-way cock is fitted in the cistern with ball and lever, and one aperture of the cock opens into each of the spaces in the cistern. The large division of the cistern is fitted with a pipe or pipes to deliver the house supply as required, and the small division has a syphon-trapped pipe leading into the drain and covered by a valve, the vertical rod of which is attached to the lever of the two-way delivery cock. The water from the main first fills the small division, the position of the lever being such that the valve at the lower part remains closed. The water then flows over the partition (which is kept a trifle lower than the sides of the cistern for this purpose) and fills the large division, the rising of the ball in which overcomes the pressure upon the valve in the small division, and lifts it suddenly to such a height as to permit of a rapid discharge of water through the syphon-trapped pipe into the drain." A modification of this plan, adapted to a filtering rain-water cistern would be advantageous in many respects. Such a cistern would be a valuable auxiliary to houses where the supply of water is maintained on the intermittent system. Not the least disadvantage of this defective plan of supplying houses with water, is the loss sustained by the water running over the cistern through the waste pipes; this is estimated in a certain district of London to be no less a quantity than 29 gallons per house, and this at each delivery. The supply of water to towns will never be on a proper footing till these wasteful appendages to cisterns shall be set aside, by the use of the system of constant supply at high service. One advantage to be derived from such a mode of supply, independently of the saving of material and time, will be the

ready means which every house may have within itself of extinguishing accidental fires. Nothing will be easier than to have recesses in the wall at the different landings of the staircase, and in passages, or in corners of the houses, having doors easily opened and *come-atable*, in which may be coiled lengths of flexible hose, attached to a water crane, connected with a pipe led down the inside of the wall. Or small and very handsome cabinets may be placed in each apartment (fixtures of course), in which may be placed hose connected with a water-pipe: by opening the crane attached to these, a powerful stream of water may be directed to the burning mass wherever situated. These contrivances may be smiled at by some, as being Utopian in their character, mayhap stigmatised as trifling; nevertheless, if the term of threescore years and ten are to be allotted us, we shall certainly see these, or similar contrivances, adopted in every well-regulated house; unless, indeed, houses are hereafter, and that speedily too, constructed on such scientific principles as to render such preventive measures unnecessary."

#### WHAT IS "RESTORATION OF BUILDINGS?"

It is rebuilding the whole or part, or re-decorating and beautifying them. If then the church (for we will confine ourselves to churches), or any part of it, has already been destroyed, or is too ruinous to be used in safety, this is a necessary and laudable work. Or if the ornaments, carvings, or paintings are worn off, and are no longer beautiful, it is a very praiseworthy, though not so necessary a work. For our churches must be sound; they must not have even the appearance of neglect; and they must also be beautiful—as beautiful as we can make them.

In these cases, then, this work is good; and this being willingly granted, it may seem foolish to find fault with the name, but I am confident that this name does really mislead and cause incalculable injury. It must, therefore, be opposed.

Let it then be remembered, though it is of course a mere truism, that everything we make now, whether for ornament or use, whatever pattern or style, or design, it be of, is new. It may be correct or incorrect, beautiful or ugly, strong or weak—but it is new. It may have been put in the place of something old—it may even have been put over and upon the old—it may be an exact *fac-simile* of the old—or it may be put where no work of art ever was before; but in every case it is equally new. It is no matter whether it be a whole church or a chancel, or one pier or a capital, or even a single leaf or flower in it; if it is made now it is a new work. Why, then, call it a restoration? The name is false. There is nothing restored. Something original is taken away, or has decayed and fallen, and something new is inserted in its place. Renovation is the proper name for the operation. But no one would allow a church to be renovated. An outcriy (and a most just and worthy one too) would be immediately raised against it. It is just what we are blaming our ancestors for. But under this specious name of restoration, ebergymen, architects, and builders are permitted to knock to pieces, or scrape off the walls, carvings and paintings, which, strange to say, they themselves are all the while praising as of surpassing beauty. So far the process is exactly what the churchwardens of the last century might have done, the original decorations which have stood for centuries are irreparably lost, and the fragments thrown away. The next step may seem to be entirely different in the two cases, but it is not really. The space being cleared, the churchwardens (before mentioned) placed a kind of sign-painting, representing Moses and Aaron, or the King's arms, or else perhaps it was a great piece of stonework, covered with cupids and inverted torches, and heathen deities, to the memory of the great man of the place. The restorer of to-day puts an elaborate piece of stone tracery, or creeping stems of foliage, or else a full-size picture of St. Christopher, carrying the infant Saviour, in which all the mistakes and some of the beauties of the old picture are copied with wonderful accuracy. In both cases, the new work is supposed to be more beautiful, or in

\* To be continued.



some sense better, than the old; and no doubt it is so in the judgment of those who erect it. But may they not be mistaken? With regard to the decorations of the last century, every one at once answers, "Yes;" and there is no doubt of the fact.

But may not the restorer be mistaken in his judgment also? in his estimate of the comparative beauty of the old half-worn work and his own new sharply cut carvings? It is possible he may be mistaken. He may not be able to believe this: no, nor any of his friends and associates either; but the next generation may judge differently, and, comparing his work, not with that which it replaced—that is destroyed,—but with others of the same age, it may perhaps condemn him as much as we now condemn our fathers.

I am now only considering the matter as a comparison of beauty: in this light, then, it is a thing to be decided by careful comparison and examination, by persons of proper taste, which is the most beautiful. Now, the most that we can do is to obtain the judgment of the present age upon this matter. This will not of course be unanimous, but still I suppose the general judgment of the age may be arrived at if pains are taken.

But even then the question arises, is this judgment correct? Let us not be too certain. We can see in many ages past an utter inability to appreciate various works of art; let us not be too certain we are right.

The restorer unfortunately does not think of this at all; for he is under the pleasing delusion, that because his work is of the same style and pattern as what he destroyed, and even, as he believes, the exact fac-simile of what that was when it was first put up, it is not a new piece of work at all. He cannot, therefore, see that there is any comparison to be made at all. Other persons, however, are not so deluded; they can see that the new doorway of the Temple Church, for example, is no more the same as the old one than the Hampton-court cartoons would be if some painter, no matter whether an R.A. or the most tasteless dauber, were to wash off the faces on them, and repaint them himself.

The comparison, however, must be made, and we must not let any specious name of restoration, or any feeling of veneration, or any false kindness towards those who, at great personal sacrifice, perhaps, and with great labour, have made the change, hinder us from boldly forming our opinion, and carefully trying to arrive at a true judgment. And if we find that, to the best of our judgment, the new work is not so beautiful as the old, we must diligently set ourselves to prevent such an alteration in the future—such a robbery, I might say, for though of course unintentional, such it really seems, as much as if a person were to come into my house and wilfully break to pieces a marble chimney-piece, and replace it by a stone one; or smash a beautiful vase of colored and Bohemian glass, and replace it by a plain earthenware one.

Considering the question, then, as one of merely comparative beauty, we cannot be sure that the renovated works of our age (I will not call them restored) are more beautiful than those which they have replaced. However, in making the comparison in any churches that the reader may know, one thing must be observed: we must, before we begin to compare, remove from the churches every thing which does not belong to the Middle Ages—every thing inserted after the beginning of the sixteenth century; for the exceptions are so rare, we do not mind passing a sweeping condemnation upon all these works; all the rest is to remain untouched. It is, therefore, with the old churches so far abstracted, that we are to compare the present renovations.

The comparison in such cases is certainly a difficult one to make fairly with regard to the whole buildings, for in the one case every thing is new, sharp, shining, and of one design; in the other, old works are mixed with the disfigurements caused by removing; but these places should be filled up with new work of such a kind as least to attract notice, or at any rate not to draw off the attention from the others. However, let the comparison at any rate be attempted; let it be remembered that the new is new, and the old, old; and let us judge as we usually do in cases of comparative

beauty and merit: it will not be universally found that the new is the most beautiful.

I think, then, we can easily agree to this, that the remains of mediæval art in our churches (supposing them to be not ruinous) are not to be removed and replaced by our own productions unless these latter are actually more beautiful than the old.

But the very stating of this will convince every one that it does not go half far enough. Just apply it to the paintings in the National Gallery. Who would dare to make such a proposition? "That the 'Raising of Lazarus,' or Murillo's 'Holy Family,' is not to be destroyed or repainted with something new, unless we can be sure the new painting will be more beautiful." Why, we do not even let any one clean the dirt off them for fear of washing down some little fragments of colouring. We should say to a person who offered to do any thing of that sort,—"If you think you can paint a picture, either a copy or an original design, as beautiful as these, do it by all means: we will value it, and thank you too for your pains. But there is plenty of canvas to be had, and plenty of room to hang your pictures in, or if not we will make room. But as for our old pictures we will not part with them; we know their beauty, and as, long as by any means possible, they can be held together, no one shall dare to touch them."

Why is not the same reasoning to apply to churches? "Because," perhaps, "they are not meant for the preservation of curiosities." No more is a gallery of paintings: it is meant for nourishing a love and perception of beauty in the soul. When a picture is so far worn away as no longer to be beautiful, then perhaps it should be removed into a museum of curiosities, and its place supplied by one that is beautiful. And surely the same rule may apply to the works of sacred art in churches. If the carvings on the capitals or bosses, or the paintings on the walls, or any other of the ornaments of the original church are worn so smooth as no longer to be beautiful, or to retain a trace, a legible and visible trace, of their meaning, then let them be removed, but not till then. Let them be removed into a museum, and preserved as curiosities; or even if they are entirely destroyed we will not care, for perishable works cannot be made to last for ever.

Is not, then, this a reasonable conclusion that as long as any piece of architecture is really beautiful it ought to be preserved? To destroy it or to remake it is an actual abolition of a beautiful thing.

This will not tend to quench ecclesiastical art; it will only preserve to us those models from which we have learnt it, and from which the next generations will learn it much better than from our copies, however good we may think them.

But those whose minds are filled with an idea of beauty, whose hands are eager to work it out, or who are wishing to patronize art, and to adorn churches, will find plenty of opportunity and plenty of space for all they can do. There are hundreds of new churches building and to be built, which will need their care. Or in the old churches there is plenty of room for their generous works without first removing those of former ages. Perhaps the new will not seem to accord well with the old, but that is an evil which every year will diminish, and, at any rate, both will be beautiful, and it is certainly better than having all new.

SERVATOR.

#### MASONRY AND STONE-CUTTING IN FRANCE.

DURING the last five months I have paid particular attention to the works going on in addition to the *Palais de Justice* now being erected in Paris. Unlike our tedious and expensive manner, the French merely shape the stone to the rough contour of the mouldings previously to setting, as wood is prepared by carpenters for the moulding plane; this meets the contingencies incidental to hoisting and other movements, the value of the material being very little increased by the labour expended on it. It also gives the facility of applying the building to its intended purpose in a much shorter time, and, in the case of a paucity of funds, of finishing the more expensive dressings at a future period. Many of the buildings in Paris which

to the eye of a casual observer are completed, still demand the expenditure of large sums for the finishing sculptures.

When the entire façade of a building is carried up to the blocking course of the crowning entablature, the dressing is commenced, and is finished in stages, generally beginning at the top. The first operation is performed with a hammer, the face of which is indented by deep lines crossing each other at right angles, thus forming a series of teeth; with this instrument the workman strikes evenly over the surface of the stone. Sometimes a sharp-edged hammer is used, cutting the surface by an oblique blow. Afterwards a scrape in the form of a veneering hammer is applied, and the ashlar is finished.

For the moulded and sunk work the usual cutting tools are used, and, in addition, a series of rebate-planes, having the irons set to a high pitch. It is astonishing with what rapidity they finish entablatures of the most difficult description. Other advantages are also derived from this method,—for instance, mitres, raking and circular mouldings, panelled soffits, and every description of foliated work, can be executed with the highest degree of accuracy and perfection. M. M.

#### DESCRIPTION OF NEW ROMAN CATHOLIC CHURCH AT SHEFFIELD: ST. MARIE'S.

THIS building, recently dedicated, occupies nearly half the north side of Norfolk-row, Sheffield. The first stone was laid on the 25th March, 1847. It is a cross church, in the Decorated style, and has a tower and spire at the south-west corner. The dimensions are as follow:—

	Ft. In.
The total internal length from the east to the west wall within .....	143 7
The chancel being .....	38 2
The nave being .....	105 5
The breadth of the nave is .....	24 8
The breadth of the aisles is .. north ..	18 0
.. south ..	17 0
The greatest breadth across the transepts is ..	32 8
Nave from floor to ridge .....	51 10
Chancel from floor to ridge .....	48 4
The tower is, up to the parapet ..	92 3
The spire is, up to the cross ..	95 4
And the cross and vane is .....	8 4

Total height .....

It contains 1,000 seats. The *Sheffield Times* gives a long description of the building, from which we learn, amongst other things, that the chancel is fitted up with great splendour, and presents a reredos and altar, a rood-screen and loft, sedilia, founder's tomb, with effigy and hearse, stone and metal parlores, oak stalls, with poppy-heads and panelings, a richly-inlaid floor, and over all a richly-decorated roof. The altar, built up of fair hewn stone, supports, detached from the eastern wall, the tabernacle. The door is of enamelled metal, set amidst enriched mouldings and paneling, whilst on either side are minute statuettes of angels, "harping on their harps."

In the eastern wall is the reredos. The centre is panelled in geometric panelling to the extent of the altar; and then at either end in four sunk panels, two in each, are eight images of angels bearing representations of the instruments and emblems of the Passion. Beneath these figures are small quatrefoils, with the sculptured vine, and an open cresting and cornice form the upper line of the dorsal beneath the east window. In the panes of this window, "richly light," are depicted the principal events of the life of the Virgin Mary, the patroness of the church.

The baptistry is raised by an ascent of three steps above the level of the nave, and stands beneath the tower. In the centre of the baptistry stands the font; it is of an octagonal form, borne up by a cluster of shafts with caps and bases, and an arrangement of angels below the bowl holding books. The eight sides of the bowl of the font are sunk in square panels, and contain sculptures of the seven sacraments and the Crucifixion.

The parties associated in the erection of the edifice under the direction of Messrs. Weightman and Hadfield, the architects, are:—

Contractor for the building and masons' work, Mr. Gregory; for the carpenters' work, Mr. Hayball. The decoration of the chancel—



roof, screen, &c., was from the designs of Mr. Bulmer, of Sheffield. The reredos and high altar, founder's effigy, and font, are from the workshops of Mr. Myers. The western window was carried out by Messrs. Hardman and Co., of Birmingham, and is, with the altar and reredos, from the designs of Mr. Pugin. All the other coloured windows are executed by Mr. Wailes; the great east window and two others being designed by Mr. G. Goldie. The stone carvings, with the exception mentioned above, are by Mr. Charles James; the wood carvings, with some exceptions, by Mr. Arthur Hayball. The tiles of the chancel and chapels are from the works of Minton and Co., and the metal screens, coronae of lights, &c., were executed by Mr. Ellis, of Sheffield.

## NOTES IN THE PROVINCES.

The new Corn Exchange at Ipswich is now completed. The dimensions are 66 feet by 77, area nearly 5,000 square feet, and capable of seating 1,000 people. Besides a lantern roof of sixteen windows, there are on each side eight larger ones, making a total of thirty-two. The roof is supported by six cast-iron pillars. The pavement consists of square blocks of wood. The principal entrance is through a portico. The pediment is supported by four stone pillars, each surmounted by a capital of the Corinthian order. The statue of Justice, which formerly surmounted the market-cross on the Cornhill, has been placed upon the apex of the pediment, despoiled of her scales, weights, and bandage, and metamorphosed into Ceres, with her sickle and bunch of wheat. It is alleged, on all hands, says the *Chelmsford Chronicle*, that the portico is not at all in harmony with the rest of the building. The architect is Mr. Woolnough; the builder Mr. Ribbans. The excavations, by the Hon. Captain Neville, near Hadstock, continue, and several curiosities have been recovered, amongst which are two baths, apparently for hot and cold water respectively, and in good preservation. The erection of a new bridge over the river at March has been subscribed for and arranged through the instrumentality of Mr. Charles Cullidge. A chancel for a new church at Hockerill is about to be built on a plan by Mr. G. E. Prickett, of Bishop's Stortford, architect. A site is being selected for a new church at Balsall-heath, Birmingham. A permanent building for exhibitions of cattle, sheep, pigs, and poultry, is about to be erected at Birmingham, from designs by Messrs. Branson and Gwyther, who have also the building contract. Mr. S. Hemming, according to the local *Journal*, is appointed superintending architect. The cost is not to exceed 5,000*l.* The subscription for the restoration of St. Martin's, Birmingham, is still progressing favourably. The church of the new district of Donnington Wood, near Lilleshall, was consecrated by the Bishop of Lichfield on Thursday last. The edifice was erected at the sole charge of the Duke of Sutherland. It is of stone, in the pointed style, and has chancel, nave, and transepts, with high-pitched open roof, and bell-gable. All the sittings are uniform and free; and, with gallery at end of nave, the edifice accommodates 600 people. The prisons at Dartmoor are now being thoroughly repaired; 150 men being employed on them to get them ready shortly for the reception of convicts, who, amongst other things, will, we believe, be made to relieve the community of the burden of supporting them, by employment in producing their own food on the land adjoining. The vestry of St. John's, Bristol, in restoring the parish church, are very desirous of preserving from decay the ancient gateway of St. John's, known as St. John's archway, and through which was the old northern entrance to the city. They have formed a committee of citizens, in hope of obtaining extra-parochial aid for the work. The contributions promised are nearly 200*l.* short of the sum required. Some of the munificent merchants, and others, of Bristol, resident chiefly at Redcliffe, have determined to enlarge the building and increase the efficiency of Guinea-street Hospital. Mr. Eaton has contributed 5,000*l.*, and Mr. George Thomas 1,000*l.* It is proposed that the future structure shall be erected in a more prominent situation than Guinea-street, so that it should

be, as one of the great public buildings, an ornament to the city. The Birkenhead Dock trustees are about to erect sundry walls against the river Mersey, from Seacombe to Woodside, and to construct certain dams, &c., in connection therewith, on plans already prepared by the dockyard engineer. The greatest possible activity pervades the whole of this important undertaking. From the terminus of the Morpeth and Egerton Docks—mere passage-docks—up to Wallasey-bridge, a distance of nearly two miles, the ground is like a bee-hive, covered with human bees, at work in building walls, excavating, &c. Duke-street Wharf forms the boundary of that portion of the great float which is on the eve of being opened, comprising some forty or fifty acres of dock space, bounded by walls, quays, &c., which are also building on the north, or Seacombe side. Above Duke-street Wharf, a temporary dam is thrown across the pool whilst the upper walls are building. This forms a new contract, and the work is proceeding rapidly; whilst Mr. Bailey and Mr. Tyrer are building their walls to complete the whole extent from Woodside-basin to Wallasey-bridge, a line of wharf walls upwards of two miles in extent; and, simultaneously with these works, private landowners on the north or eastern side of the pool are about to build walls; so that it would appear the long-talked of great float of 150 acres is soon to become a matter of fact. During the past week, the Morpeth and Egerton Docks have been run dry, in order to put in the 70-feet passage-gates, preparatory to penning up the water in the great float. Each half of these gates weighs some eighty tons. The West Derby Union guardians, Liverpool, are about to make some alterations in the workhouse at Mill-lane, Everton, on plans prepared by Mr. M. A. B. Clayton, of Everton Village, architect. At Bury, Lancashire, the Improvement Commissioners, in consequence of the work of their main trunk tunnel sewer having fallen in, and the great expense, if not impracticability, of carrying on the sewer in the course originally intended, have entered into a new agreement with the contractor, by which that course will be diverted. The Paving Committee have directed the pavement from top of Bolton-street past Old Market-place to be repaved; and the commissioners, at the expense of the Earl of Derby, are at same time to pave the top of Market-street. When completed, the whole will form a uniform space, paved with large sets, and, with the Derby Hotel, new Town-hall, and Athenæum (the latter in course of erection), and the intended monument to Sir R. Peel, will form a *coup d'œil* (the *Manchester Spectator* thinks) not easily matched in a small provincial town. But perhaps we are sharing some little odium with our Manchester contemporary in presuming to call Bury a small provincial town. We have just been taken to task by the *Gateshead Observer* for speaking of "rather a stylish sort of edifice for such a place as Darlington," seeing that Darlington is no less than the political centre of the southern moiety of the county of Durham. It is not easy to mete out to all that exact measure of importance to which circumstance and relative position may entitle them—especially while lost, ourselves, in a wilderness of brick and mortar, into which both Bury and Darlington might be pitched like needles into a bundle of hay. We have just discovered a new town, by the way, something like Darlington, in the midst of the wilderness, but doubtless the latter is still in its former place, and as politically and locally important as ever. The attempt to unite the proposed memorial to Sir R. Peel at Leeds with the project for a public hall appears to be a failure, as not one-third (6,460*l.*) of the necessary sum has been subscribed. The inhabitants seem to think that the corporation should erect a public building for municipal and other purposes by rate, as empowered by their Act, and that the memorial should be a separate erection altogether. About six weeks ago, a new street of workmen's cottages was commenced by Mr. W. Stobart, in a field at Monkwearmouth, and about fifty cottages have been already erected, and great part inhabited by workmen of the Monkwearmouth colliery. Attention has been paid to sanitary regulations in the building of these dwellings, according to a local paper, and a large number of cottages on a similar plan are

to be built in the same district of the town (Sunderland). The Corporation Gas Company at Sunderland made the reduction of price to 3*s.*, lately announced, in the full expectation of "a great increase of consumption which is certain to arise" in consequence of that reduction. They had not the folly to wait, as some others are doing, until a great increase of consumption had arisen, under pretence of enabling them so to reduce their price. And what is already the consequence of thus taking the initiative themselves? "Since the announcement was made, little more than a month ago, they have had eighty-five new applications for services, representing more than 300 lights, without taking into account a large number of additional lights ordered by those persons who were previously consumers." And the eighty-five new applications alluded to, be it noted, constitute a large proportion of the whole consumption of such a company, the whole number of whose consumers last year was only 1,450—now increased, however, partly in consequence of a previous reduction, in all to 1,675. It thus, too, appears, as we have often anticipated, not only that a new and extensive field of profit is opened up by a reduction of the ordinary prices of the old system to a point nearer the proper standard, but that out of the field already reaped springs up a new crop doubling and tripling the original returns without any equivalent outlay in laying it on. The Maryport Gas Company has announced a further reduction in the price of their gas from 5*s.* to 4*s.* 2*d.* per 1,000. The new Independent Chapel, Cocker-moath, was opened on Wednesday in the week just past. It has cost 1,700*l.* The style is Perpendicular; outside dimensions, 74 feet by 44. The front is of white sandstone. The south gable window is filled with stained glass. In the interior a large gasiler of wood with papier maché hangs from the centre of the roof. The architect is Mr. Chas. Eaglesfield, of Maryport; masons, Messrs. Fleming and White, Cocker-moath. The joiner work was executed by Mr. Thomas Armstrong and Mr. Joseph Bell, of Cocker-moath; plaster work by Mr. William Henderson, of Wigton; and gates, of cast iron, by the Coalbrook Dale Company. The old chapel, behind the new, is to be converted into a school-room. It is proposed to constitute an Institute of Fine Arts at Glasgow, and a design has been published by Messrs. Maclure and Macdonald for a building proposed to be erected in George-square, at a cost of 10,000*l.* Mr. Rochead, architect, and Mr. Carrick, superintendent of public works, are amongst the promoters of the scheme.

## SUBURBAN VILLAGES.

Do, Mr. Editor, say something more about suburban villages—a subject which has been now treated in your journal. Being a working man, and moving amongst that class continually, I hear a great deal about the desirability of early trains on some of the lines of railway, that for a small sum would set a man down in London a few minutes before six in the morning, and in like manner remove him from this Babylon in the evening. I feel assured that were this the case, suburban villages would grow up of themselves; and a great deal of the hard-earned money of our artisans, instead of finding its way into the doctor's pocket, would, if not "saved," at any rate serve a more satisfactory purpose in providing for increased appetites, and rearing a more healthy population. The speculation (as far as the railway is concerned) would probably not succeed at once, as it would take some little time for a sufficient number of mechanics to "move," to ensure full trains: but depend upon it an arrangement of this kind would soon be taken advantage of.

Probably a better "spec." would be for a few of our capitalists to secure a piece of land ten or a dozen miles out, and build, say 800 or 1,000 houses, and lay down a single line of rails for the use of the new town only, with trains every hour from five in the morning to ten at night. The sum paid for rent to include a ticket for a free passage on the said railway; and, by the way, a town laid out at once in this way would form a rare opportunity for what is now so much needed—perfect sanitary arrangements, water supply, &c. J.

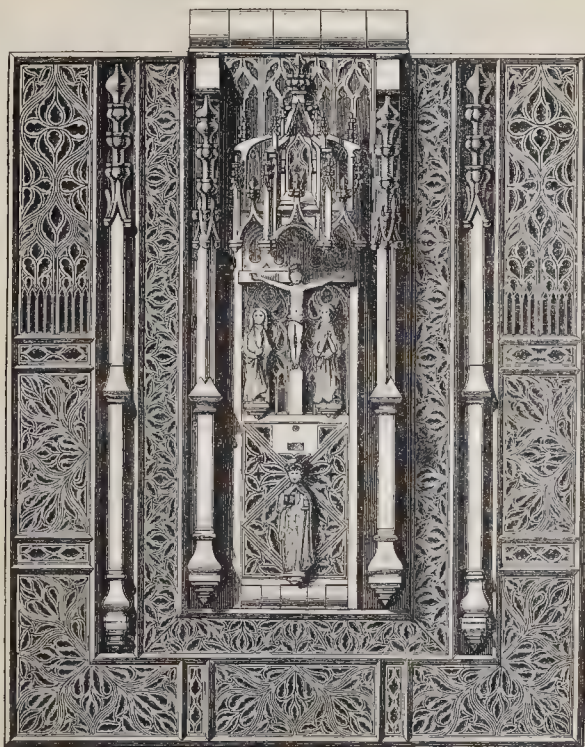




FOALY HOUSE, CORK.—THE LATE WILLIAM VIERVILIUS MORRISON, ARCHT. T.



## ANCIENT WROUGHT STEEL LOCK.



## FOATY HOUSE, CORK.

FOATY House, in the vicinity of the city of Cork, and of which we give a representation, was built, from designs by the late William Vitruvius Morrison, for the late John Smith Barry, Esq., a gentleman who succeeded to the extensive property of the late Lord Barrymore, his (reputed) father, by the will of that nobleman. It is in the mixed style known as Elizabethan, a style which, as we understand, was first introduced into Ireland by Mr. Morrison, who had studied its peculiarities in England. He erected in the same style Kilruddery Hall, Wicklow, for the Earl of Meath; Hollybrooke, Wicklow, for Sir George Hodson, Bart.; Bonis House, Carlow, for Walter Kavenagh, Esq.; Clontarf Castle, Dublin, for J. Vernon, Esq., &c.

Foaty House covers a large area, and is well planned. The principal floor includes a drawing-room 22 feet by 32 feet, library 22 feet by 32 feet, with octagon boudoir 14 feet in diameter at the end of it, and dining-room 40 feet by 22 feet, all *en suite*. The entrance-doorway seen in the engraving opens into a vestibule 18 feet by 20 feet, and thence into the Great Hall 18 feet by 31 feet, with staircase 21 feet 6 inches by 18 feet.

Mr. W. V. Morrison, who died in October, 1838, at the early age of forty-four, was the son of the late Sir Richard Morrison, and was for some time in partnership with his father. If we may judge, however, from a memoir of Mr. Morrison in Weale's "Quarterly Papers on Architecture," written by his brother, Mr. John Morrison, A.B., and some other statements made by that gentleman in efforts to do justice to his brother's abilities, Sir Richard sought rather to keep down than to extend his son's reputation.

Mr. Morrison laboured during the whole of his short life under almost continued ill-health, but nevertheless executed a large number of extensive structures.

## MEDIEVAL IRONWORK.

THE illustration represents a fine specimen of a Gothic lock, in wrought steel, of a rich, florid design. Under a canopy is the Crucifixion, and, on pressing the top of the cross, the lower panel, which contains a figure of St. James, falls, and exhibits the keyhole.

## ELECTRO-TELEGRAPHIC PROGRESS.

It appears that all objections to gutta percha as the sole or outer covering of the submarine telegraph between Dover and Calais will be obviated; as, from want of sufficient strength and weight to resist accidents, "the electric wire, thin as a lady's staylace in itself, will now be encased either in a 5 or a 10-inch cable of the diameter of those that placed the Britannia tubes in position, and these will be submerged by the aid of enormous weights. The wire will be imbedded in this gigantic coil or cable, composed of what is called whipped plait with wire rope, all of it chymically prepared, so as to protect it from rot, and kyanised; the whole to be chained down, as it were, as the rails are on a railway, by the gravitation of the huge weights in the bottom of the sea." This is certainly a more hopeful looking apparatus for such a destination than the comparatively frail and tender cord which has already been unsuccessfully tried. There are two species of mechanical obstacles to be overcome by the new apparatus: the one of these, as we long since anticipated, will be the dragging of anchors throughout the channel: the other will be the lash of the terminal waves near the shores. Both of these, we presume, have been considered in the determination come to. There are some arrangements, however, still to be made with the French Government before a continuous line of telegraph from London to Paris can be effected. In short, the throwing of the gutta percha pipe across the channel appears to have been but a temporary and premature *ruse* or scheme to enable the

parties to the undertaking to hold on by the French Government's conditions, one of which made it a *sine qua non* that electric communication was to be established or shown to be possible by a certain date, and it is perhaps questionable whether there was any serious intention to regard the line so thrown across as a permanent one.—Captain Warner of "long range" celebrity, is another claimant, it appears, of the original idea of this telegraph, which, as alleged, he submitted to the Admiralty, along with that of the transatlantic one, six years since.—The idea of running submarine wires along coasts and rivers, and through ports and harbours, has been revived; and it is intended to throw one across the Mersey, between Liverpool and Birkenhead, to begin with.—The cost of transmitting despatches between New York and Boston by telegraph is now reduced to two cents (one penny) for each word. The distance exceeds 200 miles.

## RAILWAY JOTTINGS.

THE Liverpool and Southport Company have purchased one of the promising light locomotives of Messrs. England, of Hatcham Iron-works. A Liverpool paper, in speaking of the advantages of these handy little engines, says, "In the first place, the present engine cost only 1,200*l.*; an ordinary locomotive would be twice that amount. Then this swallows only 8½ lbs. of coke per mile, whilst the larger engines require 29 lbs. Again, the wear and tear is less, and being lighter on the rails, it is natural that the adoption of small fire-steeds like this will have a tendency to diminish that heavy and continual item in some railway accounts for 'maintenance of way.' One peculiarity of the new invention, and from which some of its economy results, is that by means of what has hitherto been regarded the waste steam, the water is heated before it is put into the boiler.—But enough of promise. What as to performance? 'What speed can you go at?' we inquired of Mr. England. 'We can run as fast as you like!' was his illimitable reply. 'We will run you down at the rate of a mile a minute!' and we may say that the promise was almost literally kept. The distance from Waterloo to Southport is rather over thirteen miles, which was accomplished yesterday in sixteen minutes. The engine did a heavy day's work. The whole traffic devolved upon it, and it carried yesterday backward and forward ten trains, traversing, in doing so, 130 miles. Messrs. England's engines are now employed on three railways—the Edinburgh and Glasgow, the Dundee and Perth, and the London and Blackwall."—The advantages of advertising were curiously shown, at the last meeting of the Railway Passengers' Assurance Company, by Mr. Lee Stevens, who stated that in November last the average weekly receipts were 72*l.* The result of greater publicity being given was, that in February, 1850, the average weekly receipts had increased to 112*l.* In March, the directors materially reduced the advertisements, and the average income fell to 94*l.* 13*s.* a week, in April to 74*l.* 5*s.*, and in May they had fallen to 56*l.*, while in June they were only 42*l.* a week. During that period he had urged the directors to advertise more extensively in vain, but in June they became alarmed—he wondered they were not so sooner,—and they commenced a more liberal system of advertising. The result, according to the returns furnished him by the secretary, was that since they returned to the old system the average weekly receipts, for July, had increased from 42*l.* to 61*l.*; and for the first three weeks of August, the time to which the last returns were made up, the weekly income had risen to 68*l.* He believed that if the former policy had been steadily carried out, they would now have had an income of 250*l.* a week."—We perceive by the way from the long line of excursion advertisements in the daily papers of the present week, that the companies are taking the hint afforded them by recent experience. "The railway excursions projected to take place in all parts of the kingdom," says the *Morning Herald*, "are unprecedented. Nearly every railway company has projected pleasure trips for the middle and working classes, and the result has been to create a comparatively new species of traffic."



The *Times*, which, with other of the daily papers, had previously quoted our remarks of last week on this subject, states that "large as was the concourse of persons who availed themselves of the cheap excursion to Bath and Bristol on Sunday week, it was far exceeded by the numbers who did so on Sunday last. The number conveyed by the three trains on Sunday must have amounted to between 5,000 and 6,000 persons, and the profit netted by the company in consequence very considerable. We observe that the excursion is already announced to be repeated on Sunday next." In complete accordance with the results of other trials of low fares, we find it stated in the directors' report to be presented next week to the North British shareholders, that "the short traffic in the vicinity of Edinburgh, which has been much competed for by coaches, has all along been a source of anxiety to the directors; and they recently resolved to attempt to improve it by a large reduction of fares, and by running a few extra trains, during the summer months, to and from Portobello. The result has been most satisfactory, inasmuch as, during the short time the experiment has been going on, the revenue has increased upwards of 56 per cent. over the corresponding period of last year; while the number of passengers has been multiplied nearly fourfold, without any material addition being made to the expense of working."—An experiment is making by the Midland Railway Company to carry first-class passengers at one penny per mile, and second-class at a halfpenny. So far it is said to have proved very satisfactory, and if it continue it will be tried between Derby and Nottingham. Success there will then cause a further trial.—Penny omnibuses have commenced running between the South-Eastern Railway and the Bank.

#### PASSAGE OF WATER THROUGH PIPES.\*

My attention having been drawn to an article in the last *BUILDER*, with the above heading, I hasten to give a return of the working of a six-inch pipe, of the diameter referred to by "Baylis." The pipe was employed under the following circumstances. A tract of land, sixty acres in extent, had to be thoroughly drained with drains 30 feet apart, and 4 to 6 feet in depth. This land was comparatively level, but situate at the mouth of a ravine, at the base of an elevated and extensive range of hills; and though the stream or torrent from this precipitous catchment intersected the land to be drained, it was not considered advisable, or even possible, to adopt it as a main drain, because, like all mountain rivers, it deposited boulders and gravel at each flood; and as it was requisite to unwater the lower part of the lands when the river was carried under the junction of two public roads, at a level inadequate to discharge deep drainage water, Doulton's 6-inch glazed stoneware pipe was laid through the arch under the bed of the river, and continued straight down stream to avoid elbows. It was laid with much care, with an inclination of 1 in 200, the joints set with Roman cement diluted with hot water, and securely coated under and about with good well-puddled clay. The fall of rain in the locality referred to is 36·03 inches per annum, and by some has been estimated at 40·20 inches; besides which, there were four strong springs outcropping from higher lands, and in one place a slight percolation from the intersecting river to parallel minor drains. The limits of this communication will not permit me to enter into the calculations which guided me in the dimensions of this conduit. The result has been satisfactory, and I give you the facts, as, to the practical man, one fact is worth a thousand arguments. Your correspondent must, however, observe, that the water discharged was filtered through broken stone, and held little, if any, matter in suspension.

T. B.

**VENTILATION OF ST. GEORGE'S HALL, LIVERPOOL.**—Dr. Reid is about to make experiments with a view of testing the best mode of ventilating St. George's Hall. By an arrangement with the council, he will be employed during a space of two months.

\* Results of some experiments on this subject are in type.

#### APPROPRIATION OF RAILWAY ARCHES.

A CORRESPONDENT, "F. S.," has forwarded to us a suggestion that accommodation might be provided for hundreds of destitute beings by fitting up the arches of railways that terminate in London and other crowded cities, seemingly unaware that the idea was started in our pages long ago, and led to the establishment of a society to effect the desired object. To what extent the society has operated we do not know. The correspondent in question says justly—"These arches are at present perfectly useless, except in reference to the railway of which they form a part, but by enclosing the sides, constructing one floor, and forming a passage longitudinally, an excellent shelter from the storm and cold might be formed; mere stalls and straw pallets and a plentiful supply of water would be all the internal fitting required, and the most complete ventilation might be effected by luffer boarding at the top of each apartment, while the cleanliness of the lodgings might be imposed on those who occupied them."

A trifling outlay might effect all this, and houses be provided for the houseless poor (without the cost or time of erection) who, for the want of properly regulated establishments, infest the low lodging-houses of our city, where vice in her most repulsive form dwells, and where the children of misery and crime eat and hide themselves, unvisited by the pure air and sunlight of heaven. Beneath the arches of our railways the poorest beggar may at least enjoy uncontaminated atmosphere and uninterrupted light in addition to an effectual shelter from the inclemency of the weather. It would be far from advisable that asylums such as these should not be under the direction and guidance of regular inspectors or overseers; on the contrary, they should be most strictly and carefully managed, in order to prevent them being abused or degenerating into the same hotbeds of villany that the low and miserable lodging-houses are now.

Would not places such as these tend greatly to the diminution of crime, inasmuch as an immense number of the poorest class, and these, it may be, of a dissolute character, would be removed from temptation of many kinds that naturally occurs to those who, from necessity, wander about without a roof to cover them?"

#### ON HOOPING RAILWAY ARCHES.

DURING the construction of the viaducts for railways in this country, many disastrous accidents have occurred by the falling of part of the arches, which has generally happened at the time of the centres being struck. The cause of these disasters it has not been difficult to ascertain, and is to be traced mainly to a more than usual continuance of wet weather during or immediately after the construction. The arches in question being usually constructed of brickwork, or of stones of small dimensions, occasioning a great multitude of joints, a proportionally large quantity of mortar has of necessity to be used in filling these joints. An unusual quantity of rain falling would naturally prevent the mortar from setting; and the mortar being thus kept in a kind of semi-fluid state, a small inequality of pressure in the different parts of the arch would be sufficient to bring the whole to destruction.

As a remedy for the disasters here spoken of, we are induced to propose the following plan:—As soon as an arch is completed, a series of hoops, formed of strip-iron, are to be laid over the exterior surface at equal distances, extending from pier to pier. Each hoop is to be composed of two pieces of equal length, each part extending from the crown of the arch along to the exterior surface, or extrados, and then across the piers to the springing of the adjoining arches on both sides, where they are to be turned up, in order to obtain a sufficient hold on the brickwork. It being supposed that all the arches are hooped in the same way, the hoops of the adjoining arches will in like manner protect across the piers in the contrary direction, to the springing of the arch of which we are more particularly speaking, where they are to be turned up as before. The hoops of the adjoining arches are to be so arranged that the turned-up ends of the ranges of hoops (extending over the whole viaduct) may just pass alongside each other, and the space between the turned ends being firmly built up with brick-

work, on the hoops being tightened they will mutually draw against each other. At the crown of the arches, the two parts of the hoops are coupled together by means of screw bolts: these should not be less than three in number, in order that a bolt may be exchanged without inconvenience, in case it should be required. These ends of the hoops are turned up, and strengthened with angle-pieces, in order more effectually to withstand the pressure of the screw bolts. The two ends should not approach each other within nine or ten inches in the first instance, in order to afford room for the closing up of the ends when the bolts are screwed up. A thin piece of sheet-iron is put under the two ends, betwixt the iron and the brickwork of the arch, in order to facilitate the sliding of the hoop on the arch when undergoing the process of tightening. At the extremities of the viaduct, the ends of the last hoops will require to be secured by being carried to a sufficient depth in the brickwork.

In a viaduct 30 feet wide, five or six ranges of hoops placed across the arch, at equal distances, will be sufficient. These may be made of strip iron, 9 inches wide  $\times \frac{1}{8}$  of an inch thick. If five are employed, the total breaking weight of the whole will be nearly double the gross weight of one of the arches to which they are applied—that is, supposing the arches to be about 35 feet span. The object of the hooping being to counteract the inequality of pressure, or want of balance in the different parts of the arches, and as this difference of pressure can only be a very small fraction of the total weight of one of them, therefore the strength of iron given above will be more than amply sufficient for the purpose intended. The piers being raised to the height of the crowns of the arches, and the arches filled up at the haunches to the same level, the screw bolts at the different crowns are to be tightened. The arches are to be left in this state till it is judged that the mortar is sufficiently set, when the centres are to be eased as in due course. On this being done, the screw bolts at the different crowns are to be again tightened, in order to follow up as the arches settle. Every thing about the arches appearing secure, the centres may now be removed, and the hoops will prevent any alteration taking place in the shape of the arches.

When the viaduct is completed, the hooping will of course, be completely concealed in the interior of the brickwork.

JOHN POTTER.\*

#### BREAKING WEIGHT OF RED PINE.

You will oblige me by inserting the following constants, which may be of service to those using my tables, and who may, for the same quality of timber, adopt the standard of strength deduced from the experiments upon American red pine balks, given from Mr. Clark's work in last week's *BUILDER*:

"Mean of two experiments upon American red pine, 12  $\times$  12 and 15 feet long, clear bearing. Breaking weight, suspended from the middle, 14 tons, or 280 cwt.

'The strength  $S = \frac{250}{116 \cdot 24} \times 1344 = 816 \cdot 6$ '

The strength, depth, and breadth of any species of timber of the assumed standard strength 1344 being 1·00; then for the strength 816·6, we have as follows:—

Table of Constants No. 1, p. 2, in Lea's Tables.  
Relative strength ..... '6076 col. I.  
Depth to have the same strength 1·283 " II.  
Breadth to have the same strength ..... 1·646 " III.  
Table of Constants No. 2, p. 50—Second Series.

#### Weight uniformly loaded.

Factor to give the breaking weight ..... 4·861 col. I.  
Reciprocal of the same ..... '2057 " II.

#### Weight suspended from the middle.

† Factor to give the breaking weight ..... 2·430 " III.  
Reciprocal of the same ..... '4115 " IV.

Table of Constants No. 3, p. 96—Third Series.  
Factor to give the depth and breadth to have the same strength ..... 1·181 col. I.  
WILLIAM LEA.

AT MADRID a new grand Italian Opera House, built at the expense of the state, to be called "Teatro del Oriente," is about to be opened.—*Literary Gazette.*

\* From the *Engineer and Machinist*.  
† The tabular weight for the scantling, in the second series of the above-named tables, multiplied by 2·43, gives the breaking weight suspended from the middle, for the strength 816·6.

At page 76 of the tables, the tabular weight for 12  $\times$  12 and 15 feet long is 115·2 cwt.



## Books.

*School Builder's Guide, and School Furniture Pattern Book.* By the Rev. CHARLES RICHSON, M.A. London: Darton and Co. 1850.

All who have to design, build, or conduct parochial and national schools will find Mr. Richson's pamphlet of much use. It is divided into three parts, the school fabric, the school fixtures, and the school furniture, and contains many illustrations, including a design for schools, by Messrs. Holdens. The author properly points out that it is bad economy to attempt to save the expense of an architect in erecting school buildings.

## Miscellaneous.

**ARCHITECTS' REQUIREMENTS.**—**CAST-IRON.**—Mr. Fairbairn, in a report on the cause of failure of the mill at Stockport, mentioned in our pages a short time since, made the following remarks, which are eminently worthy of attention:—Cast-iron may be said to be of almost universal application at the present time, in the construction of buildings. Its use is, at all events, very extended; and the repeated occurrence of lamentable accidents, which have hurried numbers to their graves without the means of escape, or a single moment's reflection, evidences a deplorable want of knowledge of its general properties amongst those who undertake the designing and erection of buildings, and seems to call for the interference of the strong arm of the law, or, at least, for the supervision of some higher authority than now exists, to enforce obedience to those well-established principles and facts which point out a way to its perfectly secure adaptation, when duly and accurately proportioned to the duties it may be called upon to perform. No material is of greater value in all the requirements of building, machinery, and the constructive arts generally; and, when employed under the directions of men of knowledge and judgment, it fully establishes its claim to be reckoned amongst the most valuable mineral productions of the country. On the other hand, when its application is undertaken by, or entrusted to the management of, the unthinking and ill-informed, who possess no knowledge of, or have not taken the trouble to make themselves acquainted with, its cohesive strength and powers of resistance, it becomes in such hands a most dangerous enemy, instead of a useful and powerful auxiliary. The following qualifications appear to me necessary to the successful pursuit of his profession by the practical architect and engineer:—Firstly, a knowledge of the strength and other properties of the materials which he employs; secondly, the skill necessary to distribute and proportion the parts in such form as will insure the maximum of strength, with the minimum of material; and, lastly, in the use of cast-iron and other metals, an acquaintance with the laws of expansion and contraction, in order that he might be enabled, in every construction which requires strength, and in the security of which the safety of the public is involved, to reckon with certainty upon the calculated or estimated duty of each particular casting.

**STATE OF BLACKFRIARS BRIDGE.**—In a letter from Mr. J. Walker, of the firm of Walker and Burge, to the comptroller of Bridge House Estates, ostensibly, though not very clearly, showing that there is no reason for alarm, or for stopping the traffic along Blackfriars Bridge, we find it stated, that between 26th June and 24th August, there has been a sinking of one inch in fifth pier from Middlesex side. That, from 24th August to date of letter, namely, 13th inst., there has been no further sinking. That the sinking has arisen from the bed of the river being lowered by the current of the tide and the wash of steamboats, so as to be 6 feet under the tops of the piles that inclose the pier (the former level of the bed of the river), and that the stoppage to the sinking is to be ascribed to the stone and other heavy material (upwards of 3,000 tons), which, during the last two months, have been thrown in to restore the level; and also to the repairs which have been done to the paving and piling of the foundation by the diving-bell.

**INTERNATIONAL EXHIBITION.**—The returns of space required by Manchester exhibitors show that 570 square feet of flooring, 940 feet of counter, and 4,595 feet of wall room, could be filled by manufactures; while 10,536 feet of floor, 303 of counter, and 408 of wall room, were demanded for machinery; and for sundries 16 feet of floor, 197 of counter, and 290 of wall room. The total space placed at the disposal of the Manchester committee was 10,000 feet; and of this 7,662 feet had already been allotted to works of an engineering and mechanical character. The greatest height required for machinery was 40 feet, and for manufactures 15 feet.—The Bolton Committee have issued an address to the local workmen, in which they say—"It is almost certain that every intelligent mechanic and artisan, anxious to improve himself in his particular trade, and advance his position in society, will not fail to visit the 'Industrial Works of all Nations.' Because—At a trifling expense of time and money he may leisurely examine the raw materials and manufactured products of the whole globe, which hitherto the very wealthy only have been able to see, and that by an immense expenditure in travelling. Because—He can compare the various materials and products with each other, discover which of the former are best suited to the uses of his trade, avoid the errors and imitate the excellences of the latter. Because—He can in numerous instances see the tools, machines, and means employed in, and the designs, patterns, and combinations of other arts, which may be advantageously adapted to his own. Because—If he neglect to avail himself of the advantages offered, he will be in a worse position than his fellow-workmen who embrace them. The exhibition will thus injure him if he refuse to benefit by it. Because—In many branches he will find that in one way or another the foreigner excels him, but he may also discover how he is excelled, and, knowing this, he will take care not to be surpassed at a second exhibition." For the excursion it is calculated eight days' time and 4*l.* in money are required; but no doubt the visit may be made for less money and in less time. The Committee recommend a small weekly saving till September, 1851, for the purpose. The general committee have issued regulations connected with a register of lodgings for workmen while in London.—The Society of Arts have issued a notice relative to their proposed prizes for a series of treatises relating to the exhibition.

**NEW SCOTTISH NATIONAL GALLERY.**—Messrs. Ackerman have recently published a tinted lithograph, showing the intended National Gallery and the Royal Institution at Edinburgh, in connection with the Free Church College and the Castle. The intended building (designed by Mr. Playfair) is Ionic, with two tetrastyle porticoes at each end, and a hexastyle portico in the centre of each side. The intermediate portions present simply a range of ante, with balustrade.

**ESTIMATING.**—I send you tenders for erecting the carcasses of sixty-two fourth-rate houses at Holloway, for Messrs. Overton and Hughes. Mr. Thos. Tatlock, architect. The quantities were furnished by Mr. Tatlock, at a charge of 2 per cent. :—

Haswell.....	£5.497
Barclay.....	5.290
Crabier.....	5.225
Roddo.....	5.201
Rees.....	4.950
Emmins.....	4.916
Smith.....	4.859
Trehearne.....	4.857
Symons.....	4.700
Salter.....	4.600
Tear.....	4.492
Hocken.....	4.200

It consisted of upwards of 278 rods of brick-work, ornamental coloured brick facings, dressings, &c.; Caen stone copings, cills, and dressings; glazed tubular drains of best construction; 1,726 ft. cube of fir bond and plates; 6,950 cubic feet of fir framed; 325 squares of best Bangor Duchess slating; Williams's patent, 2½-inch roll ridges and hips, with oil cement; 3-inch slab slate soffits, &c. All to be completed by the end of November next. The contractor to be bound with the "usual" facility, and to find two sureties of 500*l.* each that he fulfils his bond.—**SURVEYOR.**

**SURVEY OF BIRMINGHAM.**—At a meeting of the guardians held last week, the testimonials of the eight selected candidates were read. According to the *Birmingham Journal*, it was stated by the chairman that he had computed the sums on each assessment, which were as follows:—Mr. Robertson, whose estimate was 948*l.*, was at the rate of 6*d.* each assessment; Mr. Dyke, 850*l.*, rather less than 6*d.*; Messrs. Leversage and Corfield, 700*l.*, about 5*d.*; Mr. Thompson, jun., 500*l.*, very little more than 3*d.*; Messrs. Hebbert and Faucit, 1,050*l.*, a little more than 6*d.*; Mr. J. D. Paine, 945*l.*, about 6*d.*; Mr. I. Newey, 1,445*l.*, at 9*d.*; and Mr. P. Gannon, 1,450*l.*, at 9*d.* The chairman further intimated that it had been communicated to him that the commissioners had instructed their surveyor, Mr. Piggott Smith, to make a complete survey and map of the town, which would show every detail, and which would be placed at the service of the parish, so that they would not require a map for the parish.—After the testimonials had been read, it was, on the motion of Mr. Turner, seconded by Mr. Hartle, agreed that the tenders of Messrs. Leversage and Corfield, Mr. J. D. Paine, and Mr. Isaac Newey, be reserved for farther consideration, and that these gentlemen be requested to attend the Board on Wednesday, the 18th. It was also agreed that the travelling expenses of the gentlemen from a distance, if unsuccessful, should be liquidated.

**THE NEW BIRMINGHAM WORKHOUSE.**—The foundation-stone of this new structure was laid at Birmingham Heath on Monday last week, on which occasion Mr. Glenn, the contractor, entertained his workman, 200 in number, with roast beef, plum-pudding, and half a day's pay.

**BLOWING UP A CLIFF AT SEAFORD.**—A grand explosion of 27,000*lbs.* of powder, by the voltaic spark, while stored in chambers cut into the cliff at Seaford, was to come off to-day (Thursday). The object in view is to arrest the encroachment of the sea, and prevent the beach from drifting. The martello tower, forts, and other property will thus, it is hoped, be saved from ultimate destruction. Government are to be the chief projectors of the cliff into the sea; inasmuch as, besides otherwise greatly assisting with the needful, they have allowed the Sappers and Miners to excavate and prepare the works. "The men," it is said, "like the work, and prefer it to being shut up in barracks and garrisons,"—a good hint to Government what to do with the waste power of the soldiery in the forwarding of other great public works that might never otherwise be undertaken, at the same time, also, strengthening the force physically and materially, instead of letting it run to waste. At Seaford the cliff has been penetrated from above by five shafts 41 feet each in depth, for a charge of 600*lbs.* of gunpowder; and a gallery, 6 feet high and 5 feet wide, penetrates below from the face of the cliff to a length of 80 feet into its interior, with two smaller branch galleries 3 feet in height, each terminating in a chamber 6 feet 6 in. square in cubic measure and containing 12,000*lbs.* of powder. Sir John Burgoyne has the management of the works, which are personally superintended by Captain Froome. The voltaic batteries are under charge of Mr. Ward.

**ALTERATIONS IN ST. JAMES'S PARK.**—To allay the apprehensions of those who properly look with great jealousy on any alterations which threaten to abridge the parks, we are able to state that the inclosing railing of the palace will be brought forward only to a trifling extent, and that, with this exception, the area enjoyable by the people will remain open as it is. The railing at the western end of the inclosure will be taken down, and an ornamental terrace-wall be substituted at some distance eastward, and in a line ranging with the front of the palace. The Mall will be widened on the south by a slip taken from the inclosure, so as to bring it into the centre of the palace front (if we understand rightly), and other dress-grounds will be formed on the north side of it to accord with the present inclosure. Trees will be added to the Mall.

**ROYAL ACADEMY OF ARTS.**—We understand that Mr. Jones, R.A., has resigned his appointment, so that on the 3rd of November there will be an election of a Keeper as well as of a President.



**MANCHESTER WATER-WORKS.**—It appears from the report of the Water-works Committee recently read before the council, that the amount expended on these extensive works down to 31st July last was 347,737*l.* odd, besides 5,902*l.* of interest paid on loans; since which time 10,900*l.* more have been paid to the contractors. The progress towards completion will be seen from the following statement:—Woodhead Reservoir: Messrs. Thompson and Sons. Amount of contract, 22,600*l.* Value of work done, 1850, August 16th, 14,568*l.* 14*s.* 4*d.*; value of extra work done, 6,410*l.* 2*s.* 9*d.*—Hollinworth and Arnfield Reservoir: Mr. Samuel Taylor. Contract, 28,953*l.* 6*s.* 2*d.*; work done, 1850, August 30th, 11,839*l.* 19*s.* 11*d.*; extra, 1,881*l.* 11*s.* 7*d.*—Rhodes Wood and Torside Reservoirs: Mr. Geo. Merritt. Contract, 42,153*l.* 19*s.* 12*d.*; work done, 1850, August 30th, 14,198*l.* 6*s.* 7*d.*; extra, 3,737*l.* 6*s.* 1*d.*—Denton and Gorton Reservoirs: Mr. David Bellhouse. Contract, 17,917*l.* 16*s.* 1*d.*; work done, 1850, August 29th, 8,908*l.* 6*s.* 0*d.*; extra, 542*l.* 15*s.* 7*d.*—On the engineering works, exclusive of accommodation works for millowners, the original estimate, including enlarged mains, was 253,595*l.* 10*s.* The probable cost of these works, when quite completed, will be, it appears, 282,652*l.*, showing an excess over the estimates of 29,057*l.*, due chiefly to enlargements and improvements not originally contemplated, and to additional provision for floods. In November, 1848, the sub-committee determined to remunerate Mr. Bateman, their engineer, for the works done beyond the borough bounds, by a per centage on the estimated amount, which the engineer then stated at 207,861*l.*, exclusive of 10,000*l.* for extra size of pipes, suggested by Mr. Walker, on which he did not wish to claim per centage. Since that time it appears that alterations in the projected works must alter the estimate given in. The report was finally adopted by the council.

**ON THE TENURE OF PROPERTY IN ENGLAND AND WALES.**—The tenures under which land is held in this country have grown out of the feudal system, and have differed materially at different periods of our history. At present, landed property is of three sorts, freehold, copyhold, and leasehold: an estate belonging unconditionally to its owner, and held directly under the Crown, or rather under the law and constitution of the country, is said to be freehold. But freehold property may be liable to regular and fixed annual payments, provided it be not liable to fine, heriot, or forfeiture. Copyhold estates are held of a subject, as part of a royalty, honour, or manor, and are liable to fines on account of deaths, transfers, and other such circumstances, according to the customs of the royalty, honour, or manor of which they form a part. Leasehold property is of various descriptions, such as long leasehold, for a term of 1,000 years; life leasehold with a fine certain, or under certain limitations on renewal; life leasehold with a fine uncertain, payable to the proprietor or other superior; in this case, the latter reserves merely a conventional rent, the tenant having paid down a sum of money to obtain the lease, and the right of alienation; this practice is common in the vest of England. There is another kind of leasehold, with an uncertain fine payable to the proprietor, who receives the full rent of the land at the time of granting the lease, the lessor having a power of alienation; this is a common practice in Wales, and some parts of England. The last, and not least, of the various kinds of leasehold, is where the property is held for an ordinary term, with the power of alienation. A lease, without the power of alienation or transfer, is not called a tenure: though it merely gives a right of occupancy for some specified period, it is practically one of the most important tenures, much of the prosperity of every country, of which any considerable portion belongs to extensive proprietors, depending on the conditions in such leases.

G. J. R.

**DISCOVERY AT ROCHESTER.**—A correspondent informs us that, in pulling down some old houses near Rochester-bridge, the workmen have found a principal arch of St. Clement's Church; which church was shut up, and then taken down, in the year 1538, when the houses which are now being destroyed were built on the site. It is a pointed arch.

**COLOGNE CATHEDRAL.**—A correspondent of the *Athenaeum* says:—"Two years have done much for the Cathedral at Cologne. In less than two years more, the traveller will be able from a distance to see that the huge gap betwixt the choir and the towers is essentially diminished. The walls and one of the windows of the transepts are all but up, the flying buttresses being still untouched. The upper windows of the nave are already defined; the sketched-out tower in the façade has a new pier, and the giddily-lofty arch which is to connect it with its twin sister has been thrown. The further, however, that these interesting works advance, the more do I feel confirmed in the idea which I ventured to express on my last visit, that betwixt the space of the transepts and the bulk of the towers the proportions of the nave shrink into a shortness which both outside and inside of the Cathedral will ultimately produce a disappointing effect. I spent a long Sunday morning in the building; and to judge from the crowds that filled it, and the cheery jingle of money on the offering-plates, popular sympathy and curiosity with regard to the fulfilment of 'this broken promise to God' (as poor Hood called it) have in no degree subsided. Some of us may live to see the entire area thrown open to the vaults of the roof."

**AMERICAN IRON AND COPPER.**—A great quantity of iron ore, yielding about ninety per cent. of pure iron, is reported to have been discovered on the Black River, Crawford county, Wisconsin, with abundance of timber for furnace fuel, and water-power at hand, as well as water-carriage.—"That is nothing, however, to the advantages of the Cliff and Minnesota copper-mines of Lake Superior, which are at present yielding immense quantities of native copper, in masses themselves immense, every piece weighing two tons or more, and requiring two teams to a wagon."

**GREAT FIRE AT MONTREAL.**—Another of those immense conflagrations, to which the timber-built houses of America, as elsewhere, so frequently give rise, has been scourging the town of Montreal. Five hundred thousand dollars' worth of property it is said have been destroyed. The fire consumed several streets in a very brief space of time, and a hundred houses were entirely destroyed, and many others made uninhabitable. A number of stone and brick houses were also involved in the general destruction.

**NEW CHURCH AT WEYMOUTH, DORSET.**—On the 11th inst. the foundation-stone of the new church, dedicated to St. John (to be built in the parish of Radipole), was laid by the Reverend Edmund Holland, M.A., the patron of the united parishes of Melcombe Regis and Radipole. The site is at the end of the Esplanade, which is about half-a-mile in length, and to which the church will form an ornamental termination. The ceremony on the ground was numerously attended. The style of this church is to be Decorated, and the building will be executed with the Ridgway-hill stone, with Bath stone for the coins and traceried windows. It will contain 628 sittings, and have no gallery. The organ will be placed in the tower. The plan is similar in arrangement to that of Christ-church at Battersea. The dimensions of the nave are—length, 75 feet; width, 22 feet. The chancel 27 feet by 18 feet. The aisles are 11 feet in width, and the transepts project 9 feet from the aisle walls. The tower is 19 feet square, and is placed at the north-west corner. The height to the top of the spire is 130 feet. The height of the nave to the ridge is 52 feet, and the chancel 44 feet. The architect is Mr. Talbot Bury, and the builder Mr. P. Dodson.

**DOCK ENGINEERING AT NAPLES.**—A letter, dated Naples, September 14, says:—"A very remarkable engineering blunder has caused the destruction of a dry dock built near the Molo of Naples, at an outlay of some 30,000*l.* Yesterday the whole fabric fell in, from the pressure of water, fortunately when no workmen were on the works. The blame is attributable to Prince Ischietta, the Minister of War. It appears the king had been warned by some Neapolitan engineers that the walls were too slight; and for some time past the works were pronounced as unsafe by more than one English gentleman, whose professional knowledge at once discovered the error."

**ACOUSTIC ALTERATIONS IN EXETER HALL.**—The alteration which is being made at Exeter Hall consists in forming a coved ceiling instead of a flat one, the new ceiling being 12 feet higher in the centre than the former one. This is being effected without disturbing the slating of the roof. Wrought-iron girders are being fixed to the sides of the present principals, and the tie-beams will then be removed. One of the iron girders is now in its place. We have not yet personally looked at the works, but shall do so shortly.

**ASSOCIATE LABOUR CONFERENCE.**—On Wednesday in last week, the "Conference of trades and other delegates," at Manchester, was opened, for consideration of the questions of co-operative and associative labour. About forty persons were present. Resolutions were unanimously passed at the public meeting, mainly "pledging itself to advance, by all moral means, the great principle of co-operative association," which latter, of course, must be carefully distinguished from Communism, with which it has no essential connection.

**LEEDS SCHOOL OF DESIGN.**—The directors of this useful establishment have been giving a free exhibition of drawings, models, statues, &c. The exhibition, says the local *Intelligencer*, gave abundant proof that the mode of teaching adopted ensures a mastery of principles, and that the range of study adapts the instruction of the school to persons engaged in every branch of art and manufacture.

**METROPOLITAN INTERMENTS ACT.**—A rate-payer states, in the *Times*, that the suburban parishes, finding themselves exempt from the operations of the new Act, have begun a system of jobbing in graveyards, some of the parishes having two already, and one going to add a third; so that, unless the commissioners can put a stop to it, our suburban villages will soon present the appearance of a complete net-work of petty parochial graveyards.

**LONDON MECHANICS' INSTITUTION.**—The members of this long-established institution held a conversazione on Wednesday evening, the 18th, when there was an exhibition of sculpture, specimens of manufactures, and models of machinery. A working model of the electric telegraph was shown in operation. The rooms were very crowded. The drawing class, the music class, and the elocution class lent their aid to afford amusement.

**THE SEA-SERPENT A HYDRO-ELECTRIC MACHINE.**—Some Irish correspondents of the press are amusing their readers, and themselves, it may be, with grave and wonderful details of that still equivocal monster of the deep, the "sea-serpint." One of the most ingenious and feasible of these, if a mere invention, and if something more, certainly one of the most extraordinary, is a detail of particulars to the effect that the sea-serpent is no serpent after all, but a tremendous electrical eel, or other creature akin to the gymnotus, charging small fry which it happens to touch, electrically, as well as killing them by the contact. Another writer hints that as the eely tribe inhabit the mud at the bottom of ponds, so the natural habitat of this eel of eels must be the bottom of that "big pond," the Atlantic, the mud of which must be at present disturbed by some portentous geological movement.

**PUBLIC CONVENIENCES.**—There will of necessity, during the ensuing year, be an immense influx of foreigners from every part of the civilised globe: is there, therefore, no convincing the proper authorities of the evident necessity of erecting "public conveniences" in various crowded thoroughfares throughout London? The few already in the metropolis are in such secluded nooks and corners that none but those thoroughly conversant with our city can know where they are situated, and it is therefore hopeless to imagine that strangers will ever discover them. This, I know, is a very delicate matter to write about, but as your paper is so extensively circulated among those who will see the necessity of making a determined stir in the matter, I have ventured to address you.

F. STENT.

\* \* \* This necessity has been urged again and again in our papers.











# The Builder.

No. CCCXCIX.

SATURDAY, SEPTEMBER 28, 1850.

**S**URELY we are a most unfortunate people in regard to our public works and buildings. No matter what the purpose or the design; no sooner is it proposed to rear an edifice for the accommodation of the public, the convenience of the state, or the dignity and comfort of the Sovereign, than a thousand querulous pens are instantly called into requisition to thwart and hinder its accomplishment; too often, alas! on good grounds; but as often not.

All idea of national sentiment and the credit of the country seems utterly lost in the desire to confound and perplex the plans of those who are called upon by their official position to take the initiative or carry into ultimate effect the desired object. First comes the wrangling over the estimates; which generally ends, as in the well-known examples of Buckingham Palace and the National Gallery, in their being cut down to such an extent as to preclude all adequate grandeur of thought and conception relative to the purpose intended.

The question sought to be solved is not what extent of pecuniary means is requisite to carry into complete effect a design which shall be advantageous to the public and an honour to the country to all future time; but, how much can the minister contrive, by the utmost diligence of the whipper-in, and the support of the favourable portion of the press, to persuade a feeble majority to assist him in obtaining. But suppose, after much painstaking and interest on the part of the public, as in the case of the new Houses of Parliament, a design generally approved be in the first instance obtained; the quarrel then becomes not less fierce over the necessary adjuncts of its completion.

A bad commercial year intervenes, a cry for the curtailment of expenses becomes universal, the required amount is consequently reduced, and some of the chief characteristics and features of the original design are either altogether omitted, or so altered, as to destroy the general effect of the whole. By and by, after years of delay, the costly structure is at length finished; but the circumstances which led to its defect or deformity are either unknown or wholly forgotten; and the thoughtless or ignorant portion of the public, seeing only the result, abuse the architect, and growl and grumble over their bad buildings, as well they may. Thus it is, that other nations less wealthy and less free than ourselves, and whose institutions are less consolidated than our own, nevertheless, through the influence of public spirit, and a superior love and cultivation of the arts, contrive immeasurably to surpass us in those public works and exhibitions which serve to dignify and adorn their country.

We are now in the heat of a social war about the planting and laying out of an acre of ground in front of that luckless and ugly residence of the sovereigns of England, which, for the last thirty years, has served the public and

the press with an endless theme of vituperation and invective.

The opponents have succeeded in reducing the estimates for the proposed alteration from 26,000*l.* to 11,000*l.*! Oh, mighty triumph of economical legislation, which will probably secure us at least the consistency of bad approaches to a bad façade.

If the design itself be unsuitable, it should not be persevered in, but delayed till a better can be prepared; but if the plan be good, to leave a building incomplete for such a consideration, after the sums already expended, seems the height of folly.

With regard to the marble arch, the most feasible plan seems to be to make it an entrance to the park from Trafalgar-square. But then comes again the question of economy—that ever easy theme of palatable declamation. So that for all time to come this costly structure is to be placed in some inferior situation, because a country, whose revenue is fifty millions, cannot afford to place it on an appropriate site. Better, then, break it up at once, sell the materials for what they will fetch, and apply the proceeds to complete some one thing decently.

There is a certain description of the public expenditure which it is unwise in a nation too closely to curtail.

Buildings that are designed for the public benefit, and calculated to be of a permanent and enduring character, ought to be so distinguished by their construction and appearance, as of themselves to excite interest and command general respect. To deprive them of this is to lessen both their useful influence on the growing mind of the country, and the value of the institutions they represent in the public eye. For a State, while surrounded on every hand with evidences of private wealth and grandeur, to be parsimonious in providing the external symbols of its importance, is to lessen its value in the general esteem. These, as their objects are permanent, so to speak, constitute the assets of the nation. They are not personal, either to the Sovereign or the officers of state, but they are the property of the public, and have effect on the public, and as such should be made to contribute to its glory and renown. The expense connected with such important objects is comparative only. When once incurred, it serves its purpose for ever, and constitutes a perpetual memorial to the honour and patriotism of the country. It would be as well, perhaps, if our economists would sometimes consider that public money so expended bears its own interest, as well in the convenience it affords to posterity as in the benefit it confers upon the present generation. Unlike annual grants to individuals, which, however deservedly conferred, or worthily distributed, leave not a fragment to tell to future times the munificent liberality of those who bestowed them; our public edifices, while they serve to encourage the arts, to elevate the character of the people, and to give employment and support to thousands of honest and industrious artisans and handicraftsmen, serve also as enduring monuments to the taste and genius and honour of the present age.

**THE GIGANTIC STATUE OF BAVARIA.**—This long talked of statue is now placed on the hill of Saint Theresa, near Munich. The bronze of the statue has cost 92,600*l.* or 234,080*fr.* It has taken eight years to cast, and is to be inaugurated on the return of King Louis to Munich.

## THE KINGSTON KINGS' STONE.

The inhabitants of Kingston-upon-Thames have done a creditable thing. They have rescued the old stone on which tradition says the Saxon Kings crowned here were placed, from the obscurity and degradation into which it had fallen, and have set it up with all honour upon a pedestal near Clattern Bridge, with an inclosure about it of stone and iron. In the autumn of last year, when called in professionally to advise as to the state of Kingston church, we referred to the connection of the town with our early kings, and suggested to two or three persons that the stone to which tradition had always pointed should be preserved.\* Whatever can suggest a history or inspire a worthy sentiment is deserving of care. We went no farther, however, and the matter dropped. It was left for Mr. H. H. Young, of Leamington, to suggest to members of the corporation the propriety of forming it into a monument. Mr. Shrubsole, Mr. Ranyard, Mr. Gould, Mr. Pamphilon (the present mayor), and others took it up, and on the 19th of this month the result of their conjoined exertions was opened to the public, when there were a breakfast and varied rejoicings. Three poetical *à propos* effusions were printed and circulated, and a well-executed medal by Mr. W. J. Taylor, of London, was struck on the occasion.

The stone (which is said to be similar in mineralogical character to those forming Stonehenge) is about 3 feet 6 inches in height and 22 inches wide. The end of it has been let into a heptagonal pedestal of Bath stone inscribed on the several sides, "Eadward, 901," "Adelstan, 924," "Eadmund, 943," "Eadred, 946," "Eadwin, 955," "Eadwerd, 975," and "Edelred, 978." In each face of the stone, above the name, a coin of the respective king is inserted.† The inclosure consists of seven small pillars of Purbeck marble, with Bath stone caps and bases, connected by a cast-iron railing of interlaced arches, seven in each space. The caps are Saxonishly sculptured, and have conical terminations, each surmounted by a large iron spear-head, which may as well be removed, since, if not previously broken off or stolen, which seems likely, they will, in time, damage the caps.

The arrangement was designed by Mr. Davis, of Bath. The cost of the work, we understand, will be about 140*l.*: 50*l.* were given by the corporation, and the committee made themselves liable for the remainder, to be raised by subscription.

Improvement of the town may be expected to result, from the setting up of this memento of a time when it was called *Kyningestum*, *Jamasa ila locas*.

We will end our notice with some lines which were written for the occasion by Mr. Martin Tupper:—

Rejoice! that Praise and Honour at length  
Return to their ancient rest;  
As a wounded eagle gathers his strength  
To recover his rock-built nest;  
For of old, around yon rugged throne  
Tradition tenderly clings,  
To hail that stone, as its brother of Scone,  
The Throne of the Seven Kings!

EDWARD THE ELDER there was crown'd,  
Great ALFRED's glorious son,—  
And ÆTHELSTAN, thro' the wide world renown'd  
For merchant-trophies won,—  
EDMUND, and ÆTHELRED, in high state,  
With ELDRAD, and EDWY THE FAIR,  
And EDWARD, due to a MARTYR's fate,  
Were throned in honour there!

Thou then, such ancestry's Royal seed,  
Britannia's Heiress-Queen!  
In grace consider the loyal deed  
Thy Saxon children mean.  
To the time-hallowed Past its homage due  
The Present wisely brings,  
And thus would we pour our chrim anew  
On the Throne of the Seven Kings!

**BELGIAN TILES AND BRICKS.**—Some large importations of roofing tiles and bricks are taking place at the present time from Antwerp, the manufacture of Belgium.

\* See page 288 of present volume.

† The coins were presented by Mr. Walter Hawkins and Mr. Cuff. Mr. Hawkins also presented a book to each of the 700 children in the Kingston schools.



## ON LINEAL EXPRESSION AND ARCHITECTURAL DESIGN.\*

## CONSTRUCTION.

SUBSTANCES of various kinds are the architect's means of producing the form, shadow, and ornament before treated of, and it is certain that the nature of each substance, be it stone, brick, wood, mud, or iron, is adapted for a different system of putting together, varying as the substance varies in size or strength, ductility or roughness; and that these qualities ought to determine the nature of the construction, and be the fundamental cause of any appearance, and consequently of any idea such appearance or style may present to the mind. Construction is the essential foundation of true art, and to make a skeleton within which the external form hides and does not express, is an architectural hypocrisy, which can only please until it is discovered, and is a disgrace to the designer so long as it stands. There are what may be called the enigmas or curiosities of construction, which are harmless when merely meant as tricks and not hidden,—as, for instance, the entrance-door to Fiesole Cathedral; but as a system, false construction is an unbearable and ignoble imposition—the unenviable distinction of modern times.

Of all the glorious styles of the past, what one can be named which originated or was perfected in deceit? What one can be named which does not derive its general character and merit from its true construction?

If we turn to the Grecian buildings, and the earlier examples of Roman architecture, we find that the construction is what it appears to be, and is the basis of their style, differing in character according as the size of the material differed. In all simple repose is the system of construction, and in all there is a generic likeness.

Directly the arch was introduced in Rome, it was shown without reserve, and is the great feature which marks a change of style.

In Romanesque and Norman architecture the semi-circular arch is the primary feature of their construction and character, and it is this which renders the cinque-cento and Roman arched work so capable of amalgamation with them, as may be more particularly seen at St. Mark's, Venice, the Cathedral, Siena, and at the Porte Noire, Besançon, and the Porta dei Borsari, Verona. In Gothic, the pointed arch or equilibration is the glory of its constructive power, and the exponent of one fundamental character, however varied, in all its phases. The horseshoe arch is the foundation of Moorish construction, and enters even into the character of the very ornament. The palaces of Tuscany, the half-timber edifices of Europe, and modern engineering works, are likewise fine examples of character founded on construction, and the more these are anatomised, the more is reason satisfied of the effect being founded on the actual cause.

As a progress in construction occurred, a change in character occurred; and in none of the recognised styles before the 15th century do we find the actual construction hid or falsified in order to retain the appearance of a past system, and consequently there is always a progression to something new.

Now let us turn to modern Europe, more especially England, and analyse a few of its largest buildings. Let us strip them of their ashlar work, clamped on to the true skeleton, and what do we find? Arches of every size in every direction. It is most true, we have been grossly deceived: there are seldom fine blocks of stone like those of Greece and Rome. No simple unscientific repose; but a work of much scientific and ingenious contrivance. This may be very clever and curious; but it is essentially a vicious and inexcusable system. Is the arch an unsightly invention that we should seek to hide it? Is the nobler work to be covered that the inferior work may be seen? It is unreasonable and absurd; yet such is the case with many of the largest buildings in England, which are the product of a system fundamentally false. It is the same in Gothic and many other revivals of the day: the peculiar features arising from a necessary method of construction are still retained, without the construction which produced them.

The commencement of this dates back some

\* See p. 435, ante.

250 years. It was the revival of the antique which produced it, and it reckons among its first adopters the justly-celebrated name of Palladio. The same blind passion for an imitation of antiquity, at the cost of reason and sense, then began, and now more glaringly and grossly continues a system, which, having no foundation on truth, must in time fall. What is past, is past: let us only act up to the principle of true construction—let us only allow, as every ingenious mind must, that everything founded on deceit is unstable and vitally wrong, and we shall, by a little trouble, thought, and experience, rid ourselves of a disgrace, and lay the groundwork of new and better things. For we may be sure that the more Science advances the more Art advances; new forms require new developments, and original construction requires original Art to aid it. Had Sir C. Wren kept to the old Italian system of construction, we should have no such treasures as Bow and St. Bride's; his knowledge of construction was the foundation of his originality; and, as regards the method of discovering original construction, it is not amiss to use the very words of this great, venerable, and virtuous man:—

"Nature in the best of her works is apparent enough in obvious things, were they but curiously observed, and the key that opens treasures is often plain and rusty, but unless it be gilt it makes no show at court;" which sentence would seem to imply that to nature we must turn for hints and new ideas in construction and science generally, and that it is the province of Art so to beautify them as to render them fit for public show.

Can there be any doubt that the invention of the pointed arch and groined roof not only gave us the flying buttresses and pinnacles, but that the style thus produced, evoked also a new style of ornament with it, and that the primary feature of the pointed arch is the soul, the vivifier of the whole system? and it is curious to remark that the pointed Bowtell moulding came into use simultaneously with the pointed arch.

As regards our own country we need only cast our eyes around to know that brick is the principal building material, not only plain and plastered, but even where stone is the apparent material. Where stone is used alone it is generally of small size. Rubble work and flint are not unusual. Now it is evident that the method of spanning any ordinary voids with such materials, is by arching, and this, in fact, is the plan pursued in the great mass of buildings, including that bungling method called the straight arch. The power such forms have of producing ornament, has been strangely neglected, and the poor and pitiful custom of hiding the agreeable radiating joints of the work by some meagre mouldings or architrave stuck on in compo, forms the usual sum total of invention. Yet they afford excellent scope for ornament in themselves, and combine well with a variety of other forms which may be designed around them.

It is not so much, however, in domestic architecture the arch is to be advocated,—it exists and wants only taste and attention to render it ornamental; but it is seriously to be considered whether it should not be the grand and primary feature of the noblest works architecture can produce;—whether all the styles of the past, unfitted to the habits of the day, foreign to us, and requiring deceit and unnecessary expense to produce them, should not give way to true construction, to the noble and calm grandeur of the semicircular arch, giving it that first place which it deserves, and which it is pre-eminently fitted to retain, and which, appreciating the value of varied mouldings, and the friendliness of shadow, would, in a short time, bring forth a corresponding style of ornament, neither so monotonous as classic, nor so grotesque as Gothic.

That such a style will partake much of Romanesque, or Norman, character, is doubtless; and, indeed, founded in a great measure on the same principle, will yet carry out in a more perfectly scientific and artistic manner, what in them we can only consider as the employment of a grand system.

May the arch then be the foundation of our triumph, and nature, ever varied and charming, with her leaves and flowers, her treasures, animate and inanimate, our encyclopedia of ornament!

It would be impossible, by writing, to give any detailed account of the parts which form any style, and one can merely point out those more striking features which are to be avoided, or sought. Every component part of architecture forming a feature or subject by itself, should consist of three divisions: base, body, and capping. We see this in dados, columns, entablatures, and the building itself. The same should hold good in string-courses and balconies, and in any ornamental feature consisting of the ornamental part as principal, a projection to protect it, in a measure, and a band to carry it off into the wall. In walls too much attention cannot be paid to the base: it is a feature generally much neglected: its general character should be firm, bold, and striking. In many of the Venetian palaces it forms a very remarkable feature; in Gothic architecture, also, its value is well understood. The Strozzi Palace exhibits the effect of its deficiency. Above all things, a diminished column, any one of the orders supporting an arch, except on a small scale, is to be avoided. This, with the superimposed impost, is the great drawback to Brunelleschi's architecture at San Lorenzo and Santo Spirito, Florence. The same may be seen at the Town Hall, Lucca, and its contrast at the Town Hall, Siena, and more signally at the cathedral porch, Lucca. At San Frediano, Lucca, the effect of the arches resting on single columns is that of a crushing weight on an inadequate support; the same at Pisa Cathedral; and the simplest contrast in the round undiminished column may be seen in most early Norman churches, Orvieto Cathedral, and the church of the Frari, Venice.

The column as designed by the Greeks was for quite another purpose, and never can be justly used for this as it stands; even a single undiminished column, though better, is not enough. We shall require rather piers than columns,—more approaching to the piers of the Loggia dei Lanzi, Florence, and the piers of Cremona, Parma, and Siena cathedrals.

Plasters are equally to be shunned, as indefinite in character and affording no scope for original embellishment; they are neither truly ornamental nor useful, as generally applied, yet something of the same nature, more of a moulded buttress and with more capital, would be highly effective. Nothing is so poor and unmeaning as a single angle plaster, but its constant introduction shows the perception that something is wanted, and one might well receive hints from the rusticated angles of Roman palaces, most examples of Gothic art, and some of the Tuscan palaces.

Apparent weakness is to be decidedly avoided, however strong the reality may be. An arch containing two smaller arches, with no central support—a series of projecting arches in the same way, to form pulpit or balcony—the old form of projecting sounding boards—coved galleries without bracketed supports—and the projecting eaves of railway architecture, are all in bad taste; for strength, apparent strength, is the first demand of the spectator.

Walls may be in many cases strengthened by the introduction of circular work, filled up or not as fitness dictates: between arches of any size it should always be used, and may be made very ornamental: besides relieving the lateral thrust, care should be taken always to show the radiating points.

The introduction of iron and glass will also materially affect the design; but these, as being secondary means of construction, should be adapted to the character of the whole building. In fine, whatever system of construction is adopted—equilibrium, arch, corbelling, or simple repose—it should form the key-note, to which all the other parts of the building—proportion, form, shadow, and ornament, should harmonise.

## MOULDINGS.

There are two principles diametrically opposed for the appliance of mouldings, viz: projection and recession. Classical architecture shows the first, Gothic and Norman have adopted the last, and in many cases combine both; this is as regards their relation to the face of wall. Again, the Southern and their followers have designed their mouldings for the sake of light, the Northern for the sake of shadow; this is as regards their actual forms. The reason why the Northerners did this would



appear to be on account, in the first case, of the inclemency of the climate, its destroying effect on any ornament too exposed to it; and, in the second case, from the fact that light is not favourable with us to the production of effect, or the expression of delicate outlines. The principle in both respects as practised by our forefathers seems to be correct, because adapted to produce the best effect, and the surest protection; but as the thickness of modern walls does not often admit of the same depth of recession, it may be necessary to practise it always in conjunction with the Southern principle. Be this as it may, we may be sure that nothing is more important than the study of mouldings. But this study, so insisted on by all, is not what is usually meant, viz. the production of a more beautiful example from a known model, not the making a cyma more delicately exquisite in outline than any known, but the study which shall give to each individual member the tone of the intended expression, both in outline and shadow; for it is necessary that we should be impressed with the fact, that even the most simple forms convey an expression of some definite character to the imagination. The nature of this difference was shown before, in the three cyma rectas, and the nice perception of this difference is always a great merit in the artist. The effect of a building greatly depends on the fitness of these outlines in form and shadow for the development of its character, and they demand the most careful attention: those which project should be more studied in their outline, and those which recede, in their shadow. The number of classic mouldings is certainly insufficient for the multifarious ends to which mouldings must serve, and to the important place they hold in architectural effect as shown by Northern buildings; but an excessive use of them is destructive of that breadth of form and shadow which public buildings should possess, for they cut up and render little the largest masses, as may be seen in the decline of Gothic art, of which this custom is one of the surest symptoms. The almost sole attention given to the production of shadow in Gothic mouldings renders them unsatisfactory to the admirers of form; indeed, their outlines are often positively ugly: from them we may learn that mouldings of more than two curves are to be avoided, for a third curve weakens the idea of strength, and to gain this a fillet is necessary. The idea of a continuous number of curves in a classic cornice is evident, but this continuity is rendered agreeable by the fillets which separate them individually, or, to use a better expression, bind them together and give them that feeling of strength which architecture, from its great necessary admixture of right lines, is calculated to express. The horizontal direction of mouldings as predominant can only be proper where simple repose is the principle of construction; for it is this (the means of construction) which justly receives that decoration and placing forward to which it is entitled. In no case is this more clearly and beautifully followed out than in Greek architecture; nothing can be more simple; the cornice, the frieze, and architrave are here formed on the actual construction, and the supporting columns are particularly studied; but with all its merit how unsatisfactory in this respect is the Basilica of Vicenza, which, over the arched system of construction, has another system antagonistic in the necessary direction of its mouldings, and which renders it difficult to say which lines predominate. The arch here is the great feature of its effect, and the disagreement of horizontal lines with it is seen by the depressing appearance of the comparatively heavy entablature which surmounts it. This building is perhaps the most wonderful and beautiful combination of two most opposite principles which study and genius could devise, and yet, I think shows that where the arch is used, the lines which best assimilate with it are the vertical. This is a most important question, for the congruity of character gained by the direction of lines in connection with the construction is incontestable, and for the production of excellence one system must predominate.

In all mouldings which project, where the character by means of form is sought, no better example than Palladio can be chosen, especially in the Basilica, which, rich as its

general character, has not one moulding ornamented; but for mouldings which recede, and which depend on shadow principally for their power, ornament may be justly applied, and there should be many projecting points to catch the reflected light, and define more clearly their outlines. Not that the projecting are never to receive ornament, but that the receding ones should receive more. Opposition of form in mouldings is very agreeable to the eye; and increased value is given to the general outline, as seen in the curve of the Corinthian abacus against the straight line of architrave. The importance of this opposition of form is well known to painters, and is one of their rules of composition.

J. B. W.

#### THE FIRE IN MARK-LANE.

AN enormous gap has been made by the fire which occurred last week in Mark-lane, in the city. It extends from Mark-lane to Seething-lane, and presents a scene of ruin looked down upon from some of the neighbouring houses, which serves to give an idea of that "5th Sept. 1666," when Pepys, who lived in this very Seething-lane, wrote, "about two in the morning my wife calls me up and tells me of new cries of fire, it being come to Barking-church, which is at the bottom of our lane." The Corn Market, rebuilt by Mr. George Smith in 1828, had a narrow escape of entire destruction.\*

The whole of this neighbourhood is deeply interesting, looked at with knowledge. In this Seething-lane, first Sidon-lane, according to Stow, and then Sything-lane, the old Navy-office stood. According to the *Audit-office Enrolments*, quoted in Cunningham's "Hand-book," on the 17th of July, 1738, "Sir Wm. Chambers, the architect, received the sum of 11,500*l.* being the purchase money agreed with the Lords Commissioners of his Majesty's Treasury for the premises where the late Navy-office stood."

#### THE ORTHOGONAL SYSTEM OF HAND-RAILING.

THE construction of hand-rails is a difficult part of the joiner's business, and requires for the attainment of proficiency in it intelligence and application. A good staircase-hand is an artisan of no ordinary merit, and ought to have a better standing in the opinion of the multitude than he at present holds,—and we might say the same of many other artisans. Compare some of whom we are speaking with half the small shopkeepers of the metropolis as to skill and knowledge, and the advantage will be found greatly on the side of the artisan. It can scarcely be denied that artisans as a class have suffered from the irregularities of individuals of their body. If every man would remember that ill conduct on his part injures beyond himself, and also, on the other hand, that he has power individually to aid in raising his class, the result could scarcely fail to be satisfactory. The great body of skilled English artisans are a credit to the country, and deserve high praise.

We must keep hold, however, of the hand-rail. The heading of this article is the title of a little book, setting forth a mode of constructing hand-railing, for which the Society of Arts awarded a medal to its author, Joshua Jeays.† The least that can be said in favour of the work is, that it sets forth in black and white, for the first time, what many old hands have already found out for themselves.

We will let the writer speak for himself, and explain the *theory of the orthogonal face-mould*. "In preceding examples are shown methods of obtaining the section of a cylinder, and the application of it to the construction of the common face-mould of a hand-rail. The orthogonal face-mould, the nature of which we shall now explain, is employed merely for the purpose of determining the form of the least solid that is capable of containing within it the square wreath. The common face-mould was

\* According to the newspapers, a tablet has been discovered since our visit, having inscribed thereon the following:—"This was rebuilt in 1792. The foundation or 'base courts,' are the remains of the original palace where the City standard of weights and measures was formerly kept, and designated, in Saxon phraseology, 'Asses Thing Court,' the entrance to which was in, as is now called, 'Seething-lane.'"

† The *Orthogonal System of Hand-railing*, with practical illustrations of the construction of stairs. By Joshua Jeays. London, Simpkin, Marshall, and Co., 1850.

originally the only one employed in the process of cutting out the wreath, but the solid cut out to the form of the common face-mould contains a greater quantity of material than is required in the formation of the wreath. The difficulty of applying the common face-mould to the plank, and the impossibility of ascertaining what part of the plank the wreath will require from the mere position of the face-mould, render it necessary that some other method should be employed.

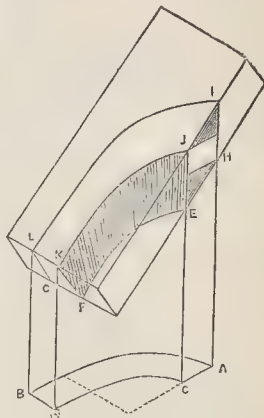


FIG. 1.

In figure 1, is shown the outlines of a plank with the oblique solid required by the use of the common face-mould drawn within it. A B C D is the plan of a quadrant of a wreath, and E F L I is the oblique solid required. It will be seen that in cutting out this solid the saw must be held in a position parallel to the vertical side E K F J of the solid; the consequence of this is, that in some cases the saw cut is of great depth. The consequent amount of labour required in cutting out the solid will of course be proportionably increased with the depth of the cut, or with the length of the vertical line E J.

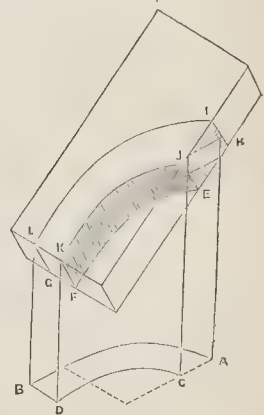


FIG. 2.

A rectangular solid may be cut out of the plank that will contain the square wreath as perfectly as the oblique solid shown in fig. 1. The accompanying diagram exhibits a solid of this description, with the end of the square wreath J H shown within it. In cutting out this solid, the saw is held perpendicularly to the surface of the plank.

The advantages of the above, over the old method of cutting out the wreath, will be at once acknowledged when it is considered that the workman can, without hesitation, mark the whole of his wreaths upon the plank, and can truly estimate the quantity of material required to complete his hand-rail before he commences, which by the use of the common face-mould would have been impossible.

The method of constructing the orthogonal







the more study and labour is directed to this department of an engineer's practice, the more forcibly is the truth impressed that an arrival at strict accuracy is yet far from being attained. It is one of the prerogatives of talent to be able to fix upon truth, and to rescue the diamond from its commoner, the pebble; but until the times be redeemed from a sudden and an indecent haste in the construction of public works,—until thought is rescued from being starved and stunted in its growth,—until science is lifted out from the student's cell "and made honourable," money will still be wastefully lavished, devoted to the putting up of works, to become, in after times, a byword by reason of their unmeaningness and their glaring imperfectness; and we shall still be compelled to go on entombing thought and erecting error over truth.

As a contribution towards arriving at an approximation to truth, this table, it is hoped, may be found of use:—

INCLINATION 1 IN 100.				
Diameter.		Discharge from smooth Brick Culverts.	Discharge from Stoneware Pipes.	Discharge from Glazed ware Pipes.
Feet.	Inches.	Cubic Feet per Minute.	Cubic Feet per Minute.	Cubic Feet per Minute.
0	3	9.56	9.95	11.34
0	4	18.75	20.01	22.95
0	5	32.69	35.02	39.75
0	6	52.21	55.48	62.72
0	7	76.65	81.47	92.05
0	8	106.95	113.55	128.32
0	9	143.44	153.25	173.47
0	10	186.73	199.06	224.23
0	11	236.75	252.48	283.97
0	12	294.8	314.4	353.7

It may be added, that in conducting the tabulated observations, care was taken in forming the interior surfaces even: the joints were closed with cement. The rate of inclination in each case was uniform.

FRED. JACKSON.

#### GLASS IN DECORATIVE ART.

ALL our ideas of Oriental splendour—all the gorgeous imaginings of Orientals, themselves, of a splendour more than Oriental, in the fairy palaces of Arabian geni—might now be realised, to sight at least, in the sober actualities of British decorative art in glass. The lustre of silver and gold, the fiery sparkle of the ruby, amethyst, and every actual or imaginable gem, and the more subdued, but no less beautiful, hues of the pearl and the tropical shell, may now, by the recent efforts of British skill and invention, be combined, at a moderate cost, and without a vestige of mere gaudy glitter, in the decoration of the mansions of the gentlemen of England, so as to realise to the eye of taste far more than even the most princely magnificence could heretofore have realised.

It is our present purpose to give a brief account of these inventions, and first, and most especially, of those more particularly devoted to architectural details. These, too, merit all the more prominent notice, inasmuch as the patentee, a lady of independent means, has destined the profits of her various inventions to the improvement of the condition of the female sex in this her native island. Moreover, the patent under which the inventions of Miss Wallace are, or ought to be, protected, comes, if we mistake not, first in order of date amongst those now to be noticed. With her peculiar claims, however, we have here less to do than with the merits of her productions. These consist, in principle, of imitations of gold and silver in glass, without the use of either metal,—of the protection of actual gilding or silvering under an almost invisible, yet magnifying coat of glass,—of a peculiar mode of adding metallic and pearly brilliancy to colours, to painted and stained figures, and to engravings, all in glass,—of imitations of marbles, alabaster, malachite, &c., in glass covered compositions,—of imitations of precious stones,—and of other inventions.

Among the various forms under which these are brought into use, in architectural decoration, by Mr. Holtorp, to whose management they are committed, are those of ceilings, in which a combination of them, with a pecu-

liar mode of enamelling in white or pale blue on the inner surface of the interspaces in glass (another of this lady's numerous inventions, also applied with good effect to framed engravings), is capable of producing a dazzling effect, particularly by night, with a good, or even an indifferent, light reflected from it. Mouldings and cornices are made, to harmonize with these effects, and the same combinations, varied with the pearly brilliancy of painted flower-wreaths, and wreaths of silver engraved on a gold surface, all in glass, are made to adorn the walls in form of picture-frames. Besides a number of these productions, in varied detail, we saw a specimen of stained-glass decoration for windows, in form of armorial bearings, in vivid colours, made peculiarly sparkling and brilliant, and, in some phases, pearly, by one of the processes already alluded to.

One great feature in most of these inventions, is, that the materials wherewith the effects are produced, wherever these consist of gilt copper mouldings, or even gilt paper, velvet, &c., are all protected, mostly within hollow mouldings of glass hermetically sealed, so that the gilding, &c., can never tarnish, and the whole is in this respect everlasting. So is it with the marble imitations, which are so firmly imbedded in composition that they are said to be quite well adapted to all the risks of exterior construction, for which they are designed, as well as for chimney-pieces and other forms of interior decoration.

Miss Wallace has proposed to the International Exhibition Commissioners, that the hall of glass be allowed to remain as a winter garden, open to the public, and be decorated at small cost by her processes. She also expects to be able to exhibit, in 1851, specimens of glass deprived in great measure of its brittleness.

The next inventions to be noticed are those of Mr. Hale Thomson, which, in principle, consist chiefly of a new mode of silvering all sorts of curved or other surfaces of glass, differing from Mr. Drayton's inasmuch as the nitrate of silver is held in a certain saccharine solution instead of oil of cloves, thus insuring, it is said, purity and permanence of colour. By an ingenious mode of moulding, the silver is lacquered on the glass between the outer and the inner surfaces, wherever, as in vases, cups, or other vessels, a double surface must be shown. The silver *diaphragm* or midriff, if we may be allowed so to call it, shining through the glass according to its colour, produces similitudes of silver cups lined with gold, or purely of silver or of gold, so perfect in appearance, as to have deceived the eye of a gold and silver smith; also ornamental vases and cups, which vie with the ruby, amethyst, jacinth, emerald, and other precious stones in their vivid reflections of colour. One cup seemed actually to blaze within with the fiery colour of the jacinth, another looked as if it were full of the most sparkling and luscious wine, and a third as if it were hollowed out of one enormous sapphire. One pair of vases of large size and beautiful tint, delicately engraved as if in *alto relievo* on silver, but in reality concave in all its rounded prominences, costs five hundred guineas. That, however, is an extreme price: two or three pounds appears to be the general cost of the smaller ornaments. The only application of this invention, as yet, to purposes more immediately architectural, at least which we observed, consisted of door-plates, with imitation knobs, apparently convex but really concave, and cut into the glass, with a colour like brass—a mere curiosity. Candlesticks showed, however, what might be done in ornamental pillars, cornices, or other decorations in apparent silver, gold, or translucent coloured stone. Metallic reflectors for light-house, railway, astronomical, or other purposes, protected of course by a glassy surface, merit notice from their brilliancy.

In the forms to which these inventions have been applied there may yet be great improvement.

Mr. Kidd's process for illuminating, silvering, decorating, and embroidering glass girandoles, cheval, toilette, and other ornamental articles in glass remains to be noticed. We have here the hitherto plain surfaces of mirrors, &c., first engraved, or, as it is called, embroidered, in patterns, such as wreaths of flowers, by a new process of art, consisting of lathes with needle points for engraving,

whereby, as in some of those already alluded to, a superior style of engraving on glass has been realised, constituting, in fact, a new branch of art. In this case Mr. Kidd has succeeded in silvering the engraved surface by a process not chemical like those of Mr. Thomson and Mr. Drayton, and the effect is excellent. The engraving, though on the inner surface of the glass, appears, in fact, as if raised upon the outer surface. In this way crests, armorial bearings for chairs or panels, and a variety of other decorations can be effected either in clear or coloured glass, as well as flower wreaths, fruit, landscapes, &c.; so that a new field is thus opened to art-artisans; and, when the means of embedding such art works solidly, and of protecting them from atmospheric and other injurious influences, are considered, the fragility of glass is in a great degree obviated, and the permanency of the work secured.

On the whole, we think we have made out the possibility, at least, of ultimately realising all those wonders in architectural and domestic decoration referred to in the outset, even by the aid of these new inventions in glass alone, and independently of all the other decorative appliances heretofore available to the architect, the upholsterer, and the decorative artist in general: at all events, when we think of it, the latter appliances are really few and pitiful by comparison with that potent phalanx of decorative materials by which they will now be reinforced. The love of decorative art in this country is rapidly on the increase, and we hope speedily to see the new era ushered in with a temperate and tasteful resort to all new and important inventions.

#### PUBLIC CONVENIENCES, AND POOR MEN'S HOUSES.

UNDER this head I saw with pleasure in your last number some remarks on a subject which very much requires notice in other cities and large towns besides the metropolis. It is, as Mr. Stent justly observes, a delicate matter for the pen; but, after due consideration, I have long felt that by agitating such subjects the cause of delicacy will be better served than by silence; and that those who undertake the unpleasant duty of coming forward for that purpose will (by keeping the necessity for improvement before the public eye, *in print*, as it seems blind to it in its every-day results) deserve well of their country for the self-denial implied by a prominence in the disagreeable task.

Since you were good enough to insert a few lines from me on the same subject in reference to moderately sized dwellings of 30l. to 40l. per annum,\* a host of such dwellings have been commenced here, all of them having the same defects as were there pointed out. From conversations I have had with their owners and builders, I am well assured we shall have no improvement till it be made matter of legal compulsion on landlords: the tenant cannot help himself otherwise than by such agitation as may induce a law in reference to it, being obliged to put up with a choice of such houses as landlords choose to erect.

In the late able article on sanitary architecture, is a suggestion that "perhaps gutta percha will answer" as a substitute for lead, for lining cisterns. I can say positively that it will, having tried it months ago in more cases than one; but it will not do for hot water cisterns. Great care must be taken that the wood is perfectly dry, and the solution of gutta percha (such as is used for fastening soles to shoes), liquified by immersion of the containing vessel in hot water, must be laid on in a good thick coat like paint, working the gutta percha with the brush well into the joints and corners. When cooled, a water-tight skin of gutta percha will be formed inside the cistern. W.

THE BOLLING TESTIMONIAL.—In the chancel of the parish church at Bolton a window has been erected by public subscription, in memory of the late member of Parliament, William Bolling, Esq., and fitted with stained glass by Mr. Wailes. The window is of three lights, in each of which is represented two pictorial subjects having reference to the life of our Lord, either as a child himself or in connection with children. An engraved and enamelled brass plate, bearing a shield, with the arms of Bolling impaled with those of Slade, surmounted by the Bolling crest, is inserted in the stone work at the back of the sedilia, beneath the window, and under it a large oblong brass plate bears an appropriate inscription, in Gothic characters.

\* See p. 350, *enfil*.



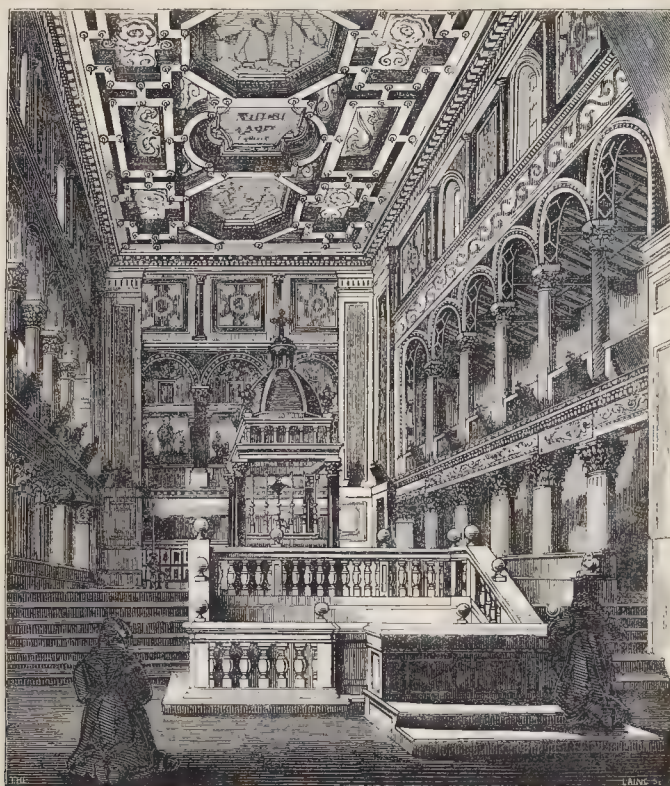
## ST. JOHN'S SCHOOLS, LIVERPOOL.

MR. HAY, ARCHITECT.





## CHURCH OF ST. LORENZO FUORI, ROME.



## ST. JOHN'S SCHOOLS, LIVERPOOL.

Our engraving represents the street-front of St. John's Schools, now erecting in Liverpool. The building includes an infant school on the ground floor, 37 feet by 21 feet; boys' and girls' schools on the two upper floors, 49 feet by 30 feet. There is an open arcade in front 7 feet wide, with a passage at each end, 5 feet wide, leading to the back playground. The staircase is octagon, in the centre of the back elevation, and has two separate and distinct sets of stairs in the same well. The front is being executed in Caen stone, filled in with Upholland flag rubble. All the timber throughout the building is Baltic: the roof of the upper school is to be open and stained. Mr. Hay is the architect. Mr. Miller is the contractor for the whole, and his estimate, exclusive of fittings, is 1,355*l*.

## ST. LORENZO FUORI, ROME.

This church is well known, as having had the orientation changed. It is supposed to have been originally founded by Constantine, rebuilt 580 and 1220. The work of 578-90 included an entire rebuilding, the part then done being the present tribune end.

In 1216-27, the orientation was changed and nave added. The sketch shows the tribune. The triforium (of large size), is without a floor.

## NEW CHURCH AT WICKHAM BISHOPS.

A CHURCH, dedicated to St. Bartholomew, has been erected at Wickham Bishops, through the munificence of Miss Leigh, the daughter of the late incumbent, and was consecrated last week.

The church is designed in the Early English style: it is built of Kentish rag stone, with dressings of Caen stone. It consists of a nave

50 feet long by 21, a north aisle of the same length, by 14 feet 9 inches, and a south aisle for the children, 25 feet by 13 feet 8 inches. These aisles communicate with the nave by four and two arches respectively, which, together with the pillars supporting them, are of Caen stone. The chancel is 32 feet long by 16 feet in width. The church has a tower at the western end of the nave, communicating with the latter by a lofty archway, the lower part being screened off for a vestry, &c. The tower is surmounted by a spire of timber frame-work, covered by boards and oak shingles, the total height being about 120 feet. The principal entrance on the north side has a porch of open woodwork, which, together with the doors, is framed of English oak.

The entrance to the churchyard from the road has a lich gate also of English oak. The external covering of the several roofs is of blue Staffordshire tiles. The floors of the passages, &c. of the church are laid with black and red Staffordshire tiles, and the chancel is paved with Minton's encaustic tiles. The whole of the internal fittings are of oak. The benches in the church have carved ends, but no doors. The seats in the chancel have carved elbows and stall ends: the fronts between them are arcaded. The communion railing is supported by pillars with carved capitals. The reading desk is formed with open arcaded work, and the front of the book-board is carved with foliage relieved by the inscription—"Search the Scriptures," which runs along it. The pulpit is of Caen stone.

The font is octagonal, with moulded base and carved bowl, having on four of its sides panels, representing, "The Presentation of Christ in the Temple," "Baptism of Christ," "Christ receiving little children," and "The Resurrection of Christ." It is surmounted by a carved cover, with pierced panels and crockets.

The windows, with the exception of two, in

the children's aisle, are all filled with stained glass. That in the west window is by Clutterbuck. The remaining windows are by Wailes.

The architect is Mr. Ewan Christian, and the works have been executed by Messrs. Higgs. The cost of the building and its fittings, exclusive of furniture, bell, plate, &c., is, we understand, about 3,000*l*.

## ST. EDWARD'S CHURCH, ROMFORD.

On the 19th inst. a new church at Romford, Essex, founded on the 26th July, 1849, was consecrated by the Bishop of Rochester. It was built from the design of Mr. John Johnson, is in the Decorated style, will accommodate 1,104 persons, and has cost about 8,000*l*.

It consists of nave and aisles, 81 feet long, by 54 feet wide, and 55 feet high; chancel, 30 feet long, and 45 feet high; with north and south chapels on each side, for the children and organ. The tower is placed on the south side, facing the road and entrances; it is 21 feet square at bottom; it contains a peal of eight bells,\* and is surmounted by a spire. The tower and spire are together 150 feet in height. The walls of the church are built of rubble, faced with Kentish rag-stone, and with Bath stone for the tracing and dressings of the windows, doors, &c. The roofs are of open framing, and, with the other deal fittings, are stained of an oak colour and varnished. The chancel is divided from the north and south chapels by oak screens and stalls on each side, and has a carved Caen stone reredos,

\* The old peal has been re-hung, but one of them has been recast under circumstances that produced a novel subscription. The fifth bell was long known to be cracked, and when taken down it was found to bear this inscription—"The bachelors of Romford paid for this bell casting Robert Motte made me, 1728." Of course an appeal was made to the unmarried miscreants, and in consequence a subscription was opened by the bachelors of Romford in 1850 for re-casting their bell, and it is now replaced in a perfect state, ready to ring the merry marriage peal for them when they find those they are looking for.



filled in with illuminated texts, monograms, &c.; and the floor is paved with Minton's encaustic tiles.

The pulpit and font are of Caen stone: the first has statues of the Evangelists at the corners, standing on corbels having their respective symbols carved on them.

Many of the fittings are gifts from individuals whose interest has been excited in behalf of the church. The large east window, stained with a painting of the Crucifixion, by Mr. Clutterbuck, is the gift of Colonel Graves, as a memorial to his wife; and the same artist has supplied two other windows in the chancel and at the west end. Three stained windows in the south chapel are by Mr. Wailes; these, also, are the gifts of private individuals, and are memorials to Mr. Sterry, sen. and his wife, Mr. Sterry, jun. Henry Tweed, and Miss Tweed. The chancel window is a memorial to Miss Emma Andrews. The font is also a memorial gift from a lady. The chancel is laid with encaustic tiles given by the lady of Mr. Coope. The body of the church is lighted by standard gas lights, with a *corona lucis* in the chancel.

Mrs. John Laurie, of Marshalls, gave the communion plate.

#### THE METROPOLITAN DRAINAGE OF SURREY AND KENT DISTRICTS.

UNDER the above heading, in a recent number of your journal, appeared an abstract of Mr. Foster's report upon the drainage of the southern districts of the metropolis, as adopted by the commissioners. From the wording of your introduction to the subject I was led, with many others, to look to the report itself for some details at least of a plan which is to cost the ratepayers of the district a quarter of a million of money; and that, be it remembered, merely by the way of prelude; for although the report commences by announcing "a report and estimate for a complete system of drainage for the Surrey and Kent districts," the estimate evidently provides for the main sewers only, leaving the detailed drainage, as explained in a subsequent part of the report, as well as the house drainage, at present out of the question.

To my great surprise, however, upon consulting the engineer's report, as printed, with a map for the use of the public, I find nothing more than a general description of the proposed line of the sewers, and the estimate published by you. Is this, I ask, all that the ratepayers and owners of property in this large district are entitled to before they become involved in an expenditure of (in the first instance) 250,000*l.*, and subsequently, if I am not greatly in error, in a further outlay of 100,000*l.*—to be within compass? Will those who are interested in the outlay of a million sterling upon public works of the utmost individual importance to every one of a community of 500,000 souls submit to be thus taxed, without reasonable evidence that this very expensive whistle will sound when purchased and paid for?

However highly they may respect the talents of the engineer, it cannot be seriously expected that the ratepayers of the district will rest satisfied with this very general and off hand mode of dealing with them and their finances; in the absence, therefore, of such figures as ought to have been furnished for their information in evidence of the practicability and probable efficiency of the drainage when completed, and in the absence of the whole truth in shape of estimate, they have no alternative but to resort to their own mode of calculating probabilities, to prepare for themselves such tests as they may deem indispensable to so extensive an operation, to realise candidly to their own view the probable cost of that "complete drainage" hinted at, but not provided for, in the chief engineer's report; and then to form and pronounce their humble judgments upon what so nearly and dearly concerns them.

As soon, Mr. Editor, as the ratepayers' report shall have been received and adopted, I hope you will be furnished with a copy, and that it will be found worthy of notice in your pages.—T. W. P.

#### RAILWAY JOTTINGS.

THE whole of the immense apparatus and surplus material used for the construction of the Britannia Bridge is about to be brought under the hammer.—The works of the Shrewsbury and Hereford Railway have been commenced by Messrs. Brassey, the contractors, in the neighbourhood of Ludlow, between which point and Shrewsbury, eighteen miles, it is intended to complete the line in twelve months.—The tube bridge, of a span of 150 feet, over the Rugby and Leamington

Railway, at the end of Bath-street and Clemens-street, Leamington, is now nearly completed, having been tested with a weight of 320 tons.

—Our readers may recollect of a proposal to have a bronze cast of a colossal statue by Leyland, at Halifax, made and erected at the entrance to a railway tunnel in that vicinity. The suggestion, we perceive, has been so far acted on that a bronze cast is being made; the first portion of it, one of the legs, weighing eight hundred weight, having been already cast, and the statue named "The Anglo-Saxon Chief;" but whether its destination be that suggested, we cannot say. The figure is in a bent and intensely listening attitude, conceived to be poetically appropriate to such a position; and it doubtless would be so, even though the ancient Anglo-Saxon's idea of the iron horse and his train were no more refined than that of one of his own posterity the other day, who, on first opening his eyes on the monster, described him as "a muckle snorting beast that gave a great screech when it saw him, and ran into a hole." We scarcely believe, however, that the modern "Anglo-Saxon" would have dared to listen at the hole like his ancestor of bronze.

—Under head of "A real Irish Railway," a contemporary says, "the site chosen for the erection of the magnificent Dublin terminus of the Great Southern and Western seems to have been unhappily selected for the uses of the railway, as a formidable hill has to be surmounted by the train immediately after it starts. Practical engineers assert that, had the spirit of jobbing not governed the counsels of the directors, much more favourable gradients could have been obtained." A passenger describes "two porters, armed with huge mops, preceding the snorting engine, and diligently scouring the rails," to prevent the engine from slipping, and enable it to overcome the ascent. A stationary engine for this part of such a line would seem to be requisite, and would obviate such a difficulty.—A new locomotive engine on an improved principle has lately been manufactured at the Great Northern works, Boston, which the makers warrant will run the distance from Boston to London (108 miles), with six carriages and two breaks, the usual express train, in one hour and thirty minutes. The principal improvement, we hear, is in the safety-valve.

An American correspondent of the *Mining Journal* says that an engine, called the *Dumny*, has just been used on the Hudson River Railway. There was no machinery to be seen, no smoke, no noise; it merely appeared like a huge square box, mounted on twelve wheels; and as the steam is condensed, and carried back to the boiler, there were no signs of even a steam-engine. The engine is said to have run six miles an hour.

#### THE EXCURSION SEASON.

THE extraordinary success of the cheap excursion system is talked of with gratulations on all hands. Various companies are benefiting thereby to an extent not only unprecedented as are the reductions of charge yielding such returns, but altogether unlooked for by the companies benefited. Cheapening in railway traffic turns out, like a few other exceptions to a general rule, to be a very different thing from cheapening and screwing in trade. It benefits all parties, and promotes nothing like the overreaching, sweating, and other evils and mischiefs resulting from "ruinous competition." Moreover, the promotion of such occasional intercourse must improve the permanent traffic. The excursions already made, now going on, and yet to come off although the season draws rapidly to a close, are far too numerous for special notice, but all have hitherto been alike successful beyond expectation, although a sad accident has happened with one of them on the Great Western. The fact is, most of the excursion schemes of this season have been gone rather hastily into, probably without sufficient preparation and arrangement. It is said, however, to be the intention of the principal companies, during the winter, properly to organise a series of excursions for the next summer, to and from every part of the United Kingdom, and to announce the same in hand-books, to be issued early in the spring, so as to give the public a choice of attraction, and time to decide upon the localities most congenial to their tastes and

pursuits. Such a course of proceeding, as remarked by a contemporary, will be found still more advantageous, both to the interests of the companies and the public, than the present hastily arranged and frequently ill-managed excursions. The London and North-Western will be then amongst others in the field with holiday trips to numerous places on their extensive line, and we do not despair of seeing trains to Liverpool and Manchester at rates something like those to Bristol and Bath of the present season. The Great Western excursion trains of next season have been already estimated as likely to add 20,000*l.* or 30,000*l.* to the ordinary returns. *The Morning Herald* speaks thus sanguinely of the redeeming influence of such traffic on railway dividends in general. "The judicious working of excursion trains—a class of traffic which is becoming a necessary portion of our domestic and moral economy—promises, with the very fair prospect of a continuance of the gratifying increase that has taken place in ordinary traffic, to give railway property that stability which over-speculation, Parliamentary discouragement, wholesale jobbing, extravagant expenditure, and general mismanagement, or a general inefficiency of control, have so seriously damaged." Excursions alone may not do all this, but a reconsideration, and a cautious reduction, of ordinary charges, an extension of the season, day, and return-ticket system in general, and other kindred measures, will greatly aid these occasional profits in accomplishing so desirable an end. Sharp practice, too, must be avoided. On the South-Western Line, the other day, we were swindled out of three shillings, because we had accidentally lost a double-journey ticket, for which we had already paid two, although name and address were proffered in proof of honesty. The superintendent at the Waterloo Station seemed to think it rather a good joke than otherwise: we should like to know, however, what would be said of a tradesman who, discovering that his customer, after paying his bill, had lost the receipt, should insist, not simply on being paid the amount a second time, but half as much again. If this should meet the eye of the "Board," we hope they will send the three shillings back to our office.

#### IMPROVEMENT IN PALL-MALL, AT THE ENTRANCE INTO THE GREEN PARK.

IT really appears surprising, in a country like this, that with all their suggested improvements they cannot carry out one that presents itself with so few obstacles, and would be attended with so little expense, and form one of the finest vistas in the metropolis, and at once an eligible site for the marble arch. I allude to the continuation of Pall-mall by a fine avenue of trees from Stafford-house to Constitution-hill, placing the marble arch at the end of Cleveland-row, looking direct into the Park. The idea is not new, it was first urged in your pages, and it is one that suggests itself at once on looking at the plan of proposed improvements in St. James's Park.

A SUB.

#### ENCLOSURE OF THE BRITISH MUSEUM.

I TAKE leave to call your attention to the fence about being erected in front of the British Museum. You doubtless know the plan of the architect was a dwarf wall and iron palisades extending the whole length of the buildings, which, from its lightness, and the relief it would have given the edifice, was highly approved by the public, and its completion has been long anxiously looked for.

Unfortunately the gentlemen residing in the wings have objected to the publicity which an iron railing would give to their dwellings, and they have succeeded in getting the plan altered, so that a stone wall twelve feet high is to be erected at each end, extending some yards beyond the residences: thus one half the space, or nearly so, will have the aspect of a prison, and the wall will doubtless in a few weeks be embellished with a succession of temporary "conveniences" to the annoyance and disgust of the neighbourhood. The news of the alteration of the plan was at first received with incredulity, but now that the ground is marked out shewing how far the high wall is to extend, sorrow (I will not say indignation) is fast taking the place of disbelief.

ONE OF THE PEOPLE.\*

\* We have received three other letters on the same subject.—ED.



THE PROPOSED JUNCTION OF THE  
ARCHÆOLOGICAL SOCIETIES.

WE can scarcely believe that the advertisement which has been issued by the Committee of the Archæological Institute, offering what they call "reasonable encouragement" to the members of the Association to join their body, can be meant as a serious response to the well-intentioned and very praiseworthy resolution passed at the Manchester meeting of the Archæological Association, recommending the Council to take steps to promote a junction of the two bodies. The object desired by this resolution, moved by the President of the Cheetham Society, and seconded by, we believe, a member of the Archæological Institute, the Bishop of Manchester being in the chair, is sufficiently important to the cause of archæology to call for some earnest endeavour on the part of the Council of the Institute to meet it, and to enlist in its favour every unprejudiced member of that body, and every earnest friend to antiquarian researches and archæological knowledge. The advertisement in question must surely have been issued under some misapprehension, and should be at once repudiated by the members of the Institute.

## Books.

*Architectural Illustrations of Warrington Church, Northamptonshire.* By Mr. W. CAVELER, Architect. London and Oxford: John H. Parker. 1850.

WARRINGTON CHURCH dedicated to the Virgin Mary, is in the northern part of the county, about three miles from Oundle. It is early English in style—approaching the Geometrical. The earliest part, which is on the south side (not the north, as stated in the work before us), is ascribed by Mr. Caveler to 1220, and the latest part to 1280. The nave measures on the plan 47 feet in width, and 70 feet in length, or one-and-a-half times the width; the chancel is 41 feet 6 inches by 19 feet.

Mr. Caveler's volume, which ranges in size and manner with the illustrations of churches published under the direction of the Oxford Architectural Society, gives plan, elevation, sections, and every detail drawn with great care and clearness. The church is remarkable in having a ceiling entirely of wood in imitation of a stone vault. The book will be found very useful.

*Report of the General Board of Health on the Epidemic Cholera of 1848 and 1849.* W. Clowes and Sons, for H.M.'s Stationery-office. 1850.

THIS is a handy little blue book of the new and reformed order, and not only without the repulsive aspect of the huge folios of old, but full of matter valuable and interesting to all. To speak compendiously of its contents, it presents a digest of all that is known of the warnings of cholera, the previous increasing prevalence of epidemic diseases, the return of cholera to the same countries, towns, and even houses, the sameness of the haunts of fever and cholera, their greater prevalence near the banks of rivers, the operation of local influences on strong and healthy subjects, the morbid effects of crowding, filth, offensive manufactures, sewers, and pigeries, putrescent mud and ditches, dampness, water polluted by town drainage, graveyards, improper food, intemperance, fatigue, and other notorious causes.

The power of preventive measures, especially of a sanitary description, to destroy the predisposition to cholera, has been enlarged on and is most striking and remarkable.

"We submit," say the reporters (Lord Ashley, Mr. E. Chadwick, and Mr. Southwood Smith), "that the late experience has added to our previous knowledge of the efficiency of sanitary arrangements in checking the extension of this formidable disease. For the evidence which we have now detailed shows,—that where material improvements have been made in the condition of the dwellings of the labouring classes, there has been an entire exemption from the disease; and that where minor improvements have been introduced, the attacks have been less severe and less extensive, and the mortality comparatively slight."

Even the simple process of lime-washing has been found to be far more effectual than

those recommending it had any conception of—not only in the prevention or suppression of cholera, but of fever and disease in general,—a fact not easily explained, it may be, although we know that white and black surfaces absorb heat and light and *smelling vapours* very differently. Black clothes, for instance, even though new and clean, seem to have a peculiar capacity for absorbing noxious vapours, which will hang about them much more than about light-coloured vestments. We would, therefore be inclined, half-seriously, to recommend the casting off of all lugubrious or sad-coloured garments, should the enemy again appear. But now is the time for the establishment of the most effectual of all preventive measures,—namely, sanitary reform in general. The reporters urge the "incomparably greater efficacy of measures of prevention than of those that are merely palliative or curative;" and finally they "submit that it is, in the mean time, essential to the protection of the public life and health that adequate legislative powers should be given for dealing effectually with those extraordinary and formidable states of disease, the occasional occurrence of which must be expected, until these sanitary works have been completed and have been introduced into all the towns of the kingdom."

## Miscellaneous.

SIGHTS AND SCENERY.—The opening scene for the excellent drama at the Haymarket Theatre, "Girald," is very effective, and entitles the painter to credit.—At the Princess's Theatre, which opens on Saturday, particular attention, we understand, is to be paid to scenery and costume.—Considerable alterations are being made in *Her Majesty's Theatre*, preparatory to opening for popular concerts.—The Panorama of the Nile is about to be removed into the provinces. Those who have not seen it should go at once.—A second visit to Mr. Allom's panorama of *The Dardanelles, Constantinople, &c.*, has done more than establish the high opinion of it we have already expressed.—In spite of all the novelties, the *Colosseum*, with its brilliant picture of Paris, its sculpture gallery, conservatories, &c., still stands one of the great "sights" of London.

A NEW "SYSTEM OF AERIAL NAVIGATION."—An ingenious invention of a M. Petin is described and illustrated in the Parisian *L'Illustration*, from which it has been translated into the columns of our own *Illustrated News*. In the brief compass of a paragraph, which is all we can afford at present to the building of ships in the air, it will be difficult to explain clearly the whole principle and mechanism of this new "system;" but let our readers keep in view what we lately said as to surplus weight as a point of resistance to working power as in the flight of birds, for in that we have something like the germ of this idea, only it is in a manner duplicated and combined with that modification of the same principle by which fishes rise and sink and swim in water. "No one," says the writer in *L'Illustration*, "has recognised, or, at least, set out with this principle, that bodies, animate or inanimate, never move but by the combination of the action of the heavy body with the resistance of the surrounding medium. Such is the law which has served M. Petin for his starting-point." This is the very starting-point to which we have repeatedly called attention ourselves, however, while noticing past endeavours to acquire dominion over the air. "Behold, then, in three words, the whole system of M. Petin—the lever, the fulcrum, and the inclined plane. The fulcrum is everywhere in nature—it is upon the earth for man and terrestrial animals; it is in the water for fishes; and, finally, it is in the air for birds; and the Creator, in his admirable foresight, has given to each animal the form best adapted to the fulcrum which must aid it in moving." M. Petin works out his principle thus, however, and not exactly like birds in the air as alleged. He has four balloons in a series connected with a framework raking fore and aft like a ship with its sails. He uses both the weight of ballast and the levity of gas. In rising by the balloon inflation, rather as a fish in water than a bird in air, he opposes to

the tendency to rise a system of parachutes resisting that tendency, and so manages these as to cause the machine to ascend in an inclined plane, and thus make progressive motion. In descent the very same principle is brought to bear by allowing gas to escape: another series of parachutes opposes the downward tendency, and is so managed by unequal pressure as to send the machine forward down an inclined plane. A system of guiding helices worked by hand or other power is also made to screw into the air in horizontal and progressive motion. Here, perhaps, is his weakest point; but we cannot afford space for further explanation.

PROTECTION OF NEW INVENTIONS FROM PIRACY.—"A Poor Inventor" writes us, very despondently, on the disappointment of the promise of protection made by the International Exhibition Commissioners to the many poor men, such as him, who were buoyed up by the hope, induced by that promise, that to them and their families 1851 would indeed be a year of jubilee and rejoicing. The Exhibition hall was to be a fair field for them, and without favour to those who "feed and fatten on the poor man's brains." But thanks to a Commons' House blind to the crying evils of an expensive patent law for the protection of these very pirates, who, under its protecting flag, are free to plunder those poor inventors whom a patent law ought to protect,—the only industry connected with such inventions that is likely to be contented and to prosper in the great exhibition of industry, if the commissioners do not use further and more strenuous exertions to fulfil their promise, is the ceaseless vigilance of a horde of inventive *chevaliers d'industrie*, whose roving commissions under the patent law are virtually and really smothering in their birth the hopeless fruits of the poor man's ingenuity, and suppressing ultimately that very invention which a patent law, worthy of common sense, should cherish and extend. An instance of another sort of evil in some respects, though in others of a similar kind, connected with the patent law, and the often ruinous, or even altogether impracticable expense, at law, of vindicating patent rights, has just been brought under notice by a correspondent of a cotemporary, who adduces it as "another instance of the unfortunate position of inventors, and that even the promised protection of a patent can scarcely insure them either praise or profit for their ingenuity." The instance alluded to is that of the patent of a poor man, now dead, for ventilating by steam; his family having been repeatedly, it is said, and with entire impunity, plundered, by infringements of their patent. It is even alleged that the ventilation of the Courts of Exchequer and Common Pleas at Westminster is about to be effected under an infringement of that patent, which was taken out by the late Mr. James Grant on 7th May, 1844. It is to be hoped that a searching, thorough, and fundamental revolution in the patent law will be speedily accomplished, and that the Industrial Commission will feel themselves in honour bound to use every endeavour, by renewed application to the Commons, to obtain the protection promised to poor inventors.

THE GRANITE QUARRY AT KIRKMA-BREEK.—The granite blocks and paving stones for the docks and quays of Liverpool are taken from a vast quarry at Kirkmaabreck, near Blackcraig, in Galloway. The quarry was opened about twenty years ago. The working of this quarry, in 1834, cost nearly 15,000*l.* including rent and tonnage of vessels, &c. It is wrought in three breasts about 30 feet high each, the one above and behind the other. At one time powder was much employed in this work, but except in opening up corners, has been for some time entirely given up. Drills, wedges, crowbars, sledge-hammers, and cranes are now principally used in quarrying even the largest masses; and it is truly astonishing to see with what facility even mountains can be removed by handicraft. In the quarry the rocks are stratified. The strata are perpendicular, and vary in thickness from 9 inches to 5 feet. When a mass is to be separated, wedges are introduced between the strata, and are driven down with sledge-hammers, and a separation is effected. A large crowbar, well-manned, is then applied, to throw down the mass to the bottom of the



quarry. A block of 14 tons is soon cut to the size and shape required, by the power of 'the plug and feather.' When a hole has been bored of the required depth, two wedges are introduced into the hole, with the thick end down, and by driving the one in the centre, the combined power of three wedges is thus obtained, and made to bear upon every hole, and thus split the stone.

**LIVERPOOL ACADEMY'S EXHIBITION.**—The following is a list of sales during the ten days in which the Exhibition has been open:—"A Group on the Mountains," T. S. Cooper, A.R.A.; "Evening," T. Creswick, A.R.A.; "Esther's Emotion," H. O'Neill; "Morning," J. Sant; "Cottage Scene," T. Westcott; "Fall of the Staubach," H. C. Selous; "View near Rivington," R. Tonge; "The Morning Ride," W. Huggins; "Gravel-pit in Burnham Beeches," H. C. Pidgeon; "A Breton Family," E. A. Goodall; "Ruins of Blackfriars' Monastery, Hereford," W. Callow; "A Country Lane," J. Clayton Bentley; "Kitchen at Mayfield, Sussex," C. Landseer, R.A.; "Clynochie Bridge," J. Peel; "Rivington Pike," R. Tonge; "Scene on the Avon," W. E. Deighton; "Distant View of Dunster Castle," Copley Fielding; "Queen Elizabeth as the Fairie Queen," Frank Howard; "Kreuznach on the Nahe," G. Stanfield; "Cliffs near Boulogne," G. Stanfield; "Edinburgh, from Inchkeith," C. Bentley; "Fish Girl," W. Davis; "Nook in a Farm-yard," W. Huggins; "Study from Nature," Thos. Westcott; "Castle of Nassau," T. M. Richardson; "The Last Man," John Martin; "Flowers," Miss Annie Mutrie; "A Fresh Breeze off the Isle of Wight," A. Vickers; "Landscape, near Newport," A. Vickers; "A Bright Summer's Day," H. J. Boddington; "St. Nicholas Church, &c., Liverpool," J. H. Williams; "Gleaners," J. A. Puller; "Group, in marble, of Romulus and Remus," Auguste Malanpré. The total sales already amount to upwards of 1,400l.

**BLASTING OF SEAFORD CLIFF.**—This great undertaking has been successfully accomplished. The galleries and chambers filled with gunpowder, as already described, were fired by the voltaic battery placed behind the cliff, and in presence of a vast number of spectators, an immense mass of cliff, at least 100 feet in height, twice as broad, and running out to a point about 300 feet, bent forwards towards the sea, cracked in all directions, crumbled into pieces, and fell upon the beach in front of it, forming a bank down which large portions of the falling mass glided slowly into the sea for several yards, like a stream of lava flowing into the water. As in previous instances, there was no very loud report, though a rumbling noise was heard, and a tremulous vibration was felt nearly three miles off. A chimney fell at the village, three-quarters of a mile off. It was believed that further cliff-falls would follow. The mass separated was larger than expected, and is thought to comprise at least 300,000 tons. The effect of the first discharge was so great, and the ground was so loosened near the telegraph-house that the upper charges were not fired. The beach is about 200 feet wide at low water, as was the case at the time of the explosion, and that space was more than covered. The explosion at Dover was performed with a smaller quantity of gunpowder, but the work done was greater there, as there was a natural cleft behind. It is to be presumed that some future means of fixing the sea-wall thus formed, so as to prevent its being washed away in course of years, will be taken, otherwise throwing the cliff into the sea might only tend to accelerate the mischief by bringing the material prematurely within the destructive influence of the waves.

**THE SOMERSETSHIRE ARCHAEOLOGICAL SOCIETY** held their annual meeting at Wells on Tuesday last week, the Bishop of Bath and Wells in the chair. His lordship spoke especially of the pursuit of natural history as a study teaching humility. "Whether (said his lordship) we view the working of the Almighty's hand in the minutest of the creeping things under our feet, in the lowest hyssop on the wall, in the cedar forest, or in the mountains in which they grow, or in the stupendous ruins of early creation now passed away; or whether we view the handicraft of men in the massive columns, the lofty arches, the delicate tracery, the exquisite sculpture, of all which

this city and neighbourhood furnish such rich examples; there is but one and the same lesson of humility to be learned." The report stated that the society had been in existence eighteen months, and consisted of more than 300 members. Papers were read by Mr. Baker, "on the marl pits of Somerset; by Mr. J. H. Markland, on the 'sculpture of the west end of Wells Cathedral;' and by the Rev. Mr. Clark, "on Wells Cathedral." Next day (Wednesday), the members proceeded to Glastonbury, to view the ruins of the abbey, and hear an illustrative paper by the Rev. Mr. Ward; after which they ascended the Tor. The next anniversary will be held at Bath.

**WIDENING CHANCERY-LANE.**—Two corner houses are about to be pulled down at the Holborn end of this lane, and the local authorities have offered Mr. Steel 750l., for 7 feet of frontage, to widen the inconvenient thoroughfare at this point. The offer has been refused, but 4 feet proposed for the sum named. The matter is still under negotiation. Lord Radnor has most liberally given up to the public the nook or bend projecting between the houses alluded to. The Woods and Forests, it appears, have power to interfere, if necessary, for the public behoof in this matter.

**ELECTRO-TELEGRAPHIC.**—Negotiations, it is rumoured, are on foot with Government for the establishment of a submarine telegraph over the 60 miles of sea from Holyhead to Kingstown, and onwards to either Cork or Galway, to be thence connected by steam-ship with the nearest telegraph station on the other side of the Atlantic.—The Ohio, Indiana, and Illinois Telegraph Company has 1,000 miles in working order.—Within the last four months, no less than 1,000 miles of telegraph have been opened in Germany, making the total mileage about 2,000 miles, of which about one-quarter has the wires laid underground. Another 1,000 miles will be ready by next year. The telegraph now works from Cracow to Trieste, 700 miles. On 1st October the new telegraph union between Austria, Prussia, Saxony, and Bavaria comes into operation, under a uniform tariff, with one-half of the former charges.

**AEROSTATIC RAILWAY BETWEEN FRANCE AND ENGLAND.**—A Frenchman, M. F. Lemaître, determined to be mastered by no mere telegraphing English engineer, has been astonishing the Academy of Sciences with an elaborated scheme of a true suspension-bridge for as true an atmospheric railway between Calais and Dover, the chains, peculiar in construction, to be suspended above from a formidable regiment of elliptical balloons, floating permanently in the air, and below to be attached to heavily-laden barges sunk under water, while abutments on the opposite shores will complete the suspension, so as to support a fairy railway bridge, under which, we presume, the Channel shipping traffic may have its usual free course to and fro! As to cost, M. Lemaître calculates that 300,000fr. per 100 yards, or 84,000,000fr. in all, will suffice. Original as M. Lemaître's idea may be, perhaps he is not aware that in the suggestion of a railway communication across the Channel, an Englishman is still a-head of him in respect to priority at least, a submarine railway tube or tunnel of wrought-iron having been projected by a Liverpool correspondent of our own, Mr. De la Haye (French name, though, after all), even prior not only to the realisation of the Britannia and Conway tubes, but to the time when they themselves were first such a subject of ridicule as doubtless M. Lemaître's idea is destined in its turn to be.

**THE IRISH AMELIORATION SOCIETY.**—The inauguration of the new society, established by royal charter, for the employment of the Irish peasantry in the manufacture of peat charcoal as a substitute for wood charcoal in all its purposes, but particularly for deodorisation of manure, &c., took place lately at one of the society's stations, in a wild and remote part of the bog of Allen. The opening of the station was witnessed by a number of distinguished persons, among whom was the Chief Secretary of the Government for Ireland, the Archbishop, Mayor, and Sheriff, of Dublin, the Earl of Clancarty, &c. This model station is at Derrymullen, county Kildare, and consists of three wooden houses, with machinery for grinding charcoal, &c. Mr.

Jasper Rogers conducted the party through the station, and afterwards gave a description of the works, in which he stated that the profits were to be expended in establishing practical instructors at the stations, 200 of which were contemplated by the charter. The people, he said, were but too happy to be employed by the society, and "often when he gave a man liberty to work, that man would burst out crying with pleasure." They required no task-master, though there were overseers. The society could sell their charcoal at 30s. a-ton, but the market price was still from 4l. up to 10l. in England. The Metropolitan Sewers Commission had given orders to prepare charcoal for a certain number of sewers, and he expected that London alone would ultimately take 2,000,000 tons yearly.

**SURVEY OF BIRMINGHAM.**—At a recent meeting of the guardians, the three candidates reserved for final selection, namely, Messrs. Leversedge and Corfield, of Taunton, whose tender was 700l., and who calculated twelve months as the time they would take; Mr. J. D. Paine, of London, 945l., in ten months; and Mr. I. Newey, 1,445l., in twenty-one months; were called in, and the chairman and several other members put various questions, relative to the mode of assessment, and other matters relating to the work. Mr. Paine asked that the time should in his case be extended to twelve months, and Mr. Newey requested that he should be permitted to tender at eighteen months instead of twenty-one, which the board, in both cases, seemed inclined to grant. After a short discussion as to the proper mode of procedure, it was at length determined that one gentleman should be recommended for appointment, and on going to the vote, Mr. Paine was selected.

**COMPETITION PLANS FOR BRIDGE ON THE RHINE AT COLOGNE.**—It appears, from an official document published by Mr. Van der Heidt, the Minister of Trade and Public Works, that the committee appointed to examine the merits of the various plans for a bridge over the Rhine, between the cities of Cologne and Deutz, have awarded the first prize of 250 frederics d'or to Mr. John W. Schwedler, architect, of Berlin, and the second prize of 125 frederics d'or to Captain W. Moorsom, of London.

**THE "THAMES SEWAGE SALVAGE COMPANY."**—Under this title a new company has been started, notwithstanding previous failures of similar schemes. It proposes to conduct the entire mass of sewage matter, by means of an iron tubular channel, to such a distance from London and its suburbs, that the flow of the tide cannot return it to the bed of the river. Its current will be concentrated at a certain point already determined on, situate below Gravesend, where it will be received into covered repositories, to undergo both a chemical and mechanical process, by which it will be condensed, and rendered a valuable fertilising agent. It is also a portion of the plans of this company, by means of a peculiarly constructed tidal-wheel, which they have secured, and a line of pipes concurrent with the sewage tubes, to supply the cities of London and Westminster with a constant stream of pure sea water, for the use of hospitals, public institutions, &c. The company propose to raise a capital of 300,000l., with power to increase it to 500,000l. It is estimated that the sale of the manufactured manure, at a maximum price of 10s. per ton, will leave a large annual profit to the shareholders. We won't say.

#### TENDERS

For house in Cannon-street, City, for Messrs. Beard, Mr. Jas. T. Knowles, architect.—

Paper .....	23,573
Masonry .....	3,350
Lindsey .....	3,450
Rider .....	3,424
Grimsdell .....	3,353
Wilson .....	3,276
Henry Burton .....	3,086
Lawrence and Sons .....	2,837

For gas-fittings, for Trinity Chapel, High Wycombe, now erecting. Mr. Charles G. Searle, architect.

	Fittings.	Fixing.	Total.
Lacey, High Wycombe .....	£88 10 0	£21 0 0	£109 10 0
Shepherd, ditto .....	42 2 0	24 0 0	66 2 0
Hulls, ditto .....	27 0 0	22 10 0	49 10 0
Fulton, London .....	29 10 0	18 10 0	48 0 0











# The Builder.

No. CCCC.

SATURDAY, OCTOBER 5, 1850.

**A**MONGST the architectural works recently published, is one that brings prominently forward the efforts that are now being made by the Wesleyan Methodists to obtain a better class of buildings for religious and scholastic purposes. It is entitled "Chapel and School Architecture," by the Rev. F. J. Jobson, and although the designs which it gives are mostly of indifferent character (all of one type, and that a common one), it sets forth good principles (so far as it goes), and will doubtless have a good effect in the desired direction. Mr. Jobson, it seems, passed the earlier part of his life in the study of ecclesiastical architecture under Mr. E. J. Willson, of Lincoln, and when he went into the practical working of Methodism could not but lament the unfit, incongruous, and unsightly forms of its buildings for worship. This led him to urge improvement in this respect, through the press, and the book before us is his last endeavour.\* He properly urges that true as it is that the Infinite Majesty doth

"Before all temples th' upright heart and pure prefer;"

yet, "If the hand have made no worthy effort to realise a 'House of God,' while the houses of men, whether for the purposes of art or science, for offices of dignity or assemblies of amusement, are built and adorned with every resource of wealth and skill, surely professing piety cannot acquit itself of half-heartedness, or something worse."

Although Christianity is emphatically a spiritual religion, it is not requisite for the preservation of its pureness that it should be clothed in common and ugly forms, that the external means of awakening and increasing pious feelings should be disregarded, and that while we lay art and science under contribution for the construction and adornment of our own houses, the House of God is to be mean and repulsive. The reverse is the case: it is the duty of man to consecrate his best works to such a service, and to make manifest his belief and reverence by worthily distinguishing the places of Divine worship.

The educational effect of a fine building is not overlooked by the author. "Deformity shocks the universal taste of civilized man. How symmetrical, how simple and pleasing, in their forms, are all the works of God! Were not the architecture of the heavens, and the furniture of the earth, together with their various and important purposes, intended to educate the mind of man, and to refine his taste? It is impossible to tell the full amount of the beneficially refining influence suffusing man amidst the forms of beauty and grandeur—the work of the Divine hand—with which he is perpetually surrounded. And he who can look up to the vaulted heavens without feeling his mind expanded, or behold a simple flower without feeling tenderness ex-

cited, is but an inapt and irreverent scholar of the all-pervading and all-beneficent Teacher!"

Elsewhere he says:—"Genius for the production of Art—is it not from God, from 'whom cometh every perfect gift?' And should it not, then, be consecrated to him? For a time, Music has taken refuge in concert-halls and opera-houses; Sculpture has employed her chisel and mallet on carving, in Italian marble, figures of licentious gods and goddesses; and Painting has defiled her pencil in portraying scenes of revelry and drunkenness, or has debased it in representing to the life pampered puppy-dogs and favourite race-horses. But shall Art, in Christian England, never be rescued from this degraded position? Shall it never employ its marvellous and elevating power for Religion? Every reflecting Christian will give an affirmative answer in his own mind."

In his second and third chapters, which are devoted to showing that the Gothic style of architecture is the most appropriate to ecclesiastical purposes, the author gives a brief sketch of the progress of Gothic architecture.

In 1846 a committee was appointed to consider the requirements of Methodism in its chapel-building department, and obtain plans from architects which might be recommended as models. Various regulations were agreed upon, which were forwarded in the shape of instructions to a certain number of architects, that they might furnish designs in accordance with these views. A small sum was paid to each architect, and a premium of 50 guineas was offered for the most suitable design. This premium was awarded to Mr. Wilson, of Bath, who has since been largely employed by the body.

The Wesleyans have shown what may be done by union: large sums of money have been raised, and a number of chapels have been built, which, if not entitled to unqualified praise, mark an era of no slight importance in Methodist architecture. We will mention a few in London and its neighbourhood. Poplar Chapel is of the Decorated style, 105 feet long by 60 feet wide; is built of Kentish rag-stone, with Caen stone dressings; will seat 1,500 persons, and cost about 4,000*l*. The New North-road Chapel, Hoxton, is Anglo-Norman in style, and is 85 feet long, including the vestries, by 52 feet wide. It is built of brick and Bath stone; will accommodate 1,200 persons, and cost 3,700*l*. The chapel of St. John's-square, Clerkenwell, is built of brick and Bath stone; is 70 feet long by 60 wide; will accommodate 1,300 persons, has a school-room, &c., and cost 4,000*l*. Jewin-street Chapel is Early English in style, 68 feet by 52 feet; seats 1,100 persons; is built of white brick and Bath stone, and cost 2,700*l*. The Islington Chapel (in the Liverpool-road) measures 90 feet long by 54 feet wide, and will accommodate 1,500 persons. It is built of Kentish rag and Bath stone; is in the Decorated style, and cost about 6,000*l*.

The most important work now being executed for the Wesleyans is the Normal and Practising Schools, Westminster, recently mentioned in our pages. The principal entrance is from the Horseferry-road; the lodge entrance from Allington-street; and the back entrances from Little Peter-street, and through a passage from Great Peter-street, giving access to the several schools from all parts of the populous neighbourhood around. The house of the principal forms the front entrance in Horseferry-road, and has

associated with it offices, and committee-rooms, necessary for transacting the business of the establishment. This building is of the Tudor style, of Architecture, and is constructed of Sneath stone, with dressings and quoins of Bath stone, faced.

Mr. Jobson's book furnishes some particulars that will serve to show the extent of this establishment. The front building in the Horseferry-road is composed of three gabled bays, in each of which is a corbel window, two stories high, and finished with string course and battlements:—

Under this building is an arched gateway, which gives access to the quadrangle of the training department. This quadrangle, formed by the buildings appropriated to the students in the front, by the dining-hall on the right, and by the lecture-hall on the left, is of the same style of architecture as the principal's house; but it has windows and buttresses more decidedly ecclesiastical in their forms, and thus assumes more fully the collegiate character. The entrance to the range of buildings appropriated to the students under training, is by a flight of steps leading to a raised terrace, and by a large door in the centre, which gives access to the lecture-rooms, class-rooms, and the dormitories for sixty male students, and forty female students. The more private rooms, such as dormitories and lavatories, are so arranged that the students of each sex are on separate floors, and these rooms are approached by separate staircases. The dining-hall is a large room, having a panelled ceiling. The lecture-hall is of similar character, but somewhat larger, and has an open timber-roof.

Passing through the central building, the visitor arrives at the second, or inner quadrangle, which is formed by the several school-rooms, ranging principally, on the left-hand side, in a line with the Lecture-Hall. This range of buildings contains four schools for the use of infants, juveniles of both sexes, and for senior boys; with class-rooms, lavatories, &c. Each school-room is 60 feet long by 30 feet wide and 20 feet high, and contains a gallery. At the farther end of this quadrangle are the houses for the masters, overlooking the playgrounds, into which the enclosed area is divided. Cloisters, or covered play-grounds, extend around the quadrangle, for the use of the children in rainy weather. At the entrance, on the right (from Allington-street), is a lodge for the protection of the premises. In the left corners of the inner quadrangle are two turrets, which supply increased accommodations to the establishment.

Beyond this quadrangle, to the south, is the Model School, raised from the ground on piers, so as to leave a covered area underneath for the use of the children in wet weather. Between this and the other school-rooms, and to the extremity of the premises on the left, is the large open play-ground of the model school. On the right of this is the airing-ground for the senior school, in which will be placed the necessary apparatus for gymnastic exercises.

The establishment of schools is engaging strongly the attention of all denominations of Christians, the Wesleyans amongst them; and we may hope that our children, if not ourselves, will really see the "schoolmaster abroad;" to say that he has yet done more than *begin* his journey is false and hurtful. Let us all strive to further him. Therein lies the hope of the world.

**CHROMO-LITHOGRAPHS.**—Messrs. Dufour\* have recently published an excellent representation, printed in colours, of Henry the Seventh's Chapel, Westminster Abbey, and another, to range with it, of the new House of Lords. They are drawn and lithographed by Mr. E. T. Dolby, and printed by Messrs. Hanhart. Of the two, we prefer the first; the blue carpet in the view of the House of Lords is rather a heavy splotch. There is, moreover, a want of distance.

\* Great George-street, Westminster.

\* Chapel and School Architecture, as appropriate to the Buildings of Nonconformists, particularly to those of the Wesleyan Methodists, with practical Directions for the Erection of Chapels and School-houses. By the Rev. F. J. Jobson. London: Hamilton, Adams, and Co. 1850.



## A WORD ON THE TREATMENT OF THE WINDOW IN ANGLO-CLASSIC DESIGN.

I NEED scarcely claim for the window an important place in our architecture. In southern countries, the door for the admission of air, the verandah and portico for protection from heat, may be the primary elements; but in England, and similar climates, the window is the grand characteristic—the most important feature. After the door, which is, of course, common to all buildings and styles, the window is the most indispensable of detached features. It occupies most space in our designs, and is therefore the feature that must ever chiefly distinguish English edifices.

The window being thus important, it is necessary to give it, in every respect, a considerable share of attention, on the design and composition of a building, that it may duly contribute to the entire result, and bear a proper part in expressing the purpose of the building. Lord Bacon includes in his idea of a princely palace, "fine coloured windows of several works;" and, indeed, no part of a house is more susceptible of decoration, or can receive it with greater advantage to the general pictorial effect.

One of the first things to consider in reference to windows is their size and number,—that is to say, the actual quantity of window opening in a given apartment, which involves the proportion of void to solid—a grave consideration. A good deal has been written and said upon this subject. Utility is first to be considered: windows are not to look at only, but to use—to enjoy; and the size and arrangement that secure the greatest amount of comfort and pleasure should be preferred. We want more window space or surface of glass in our buildings than is required in those of southern Europe, and therefore we cannot take the Italian palace or house as our model in this particular, nor be guided by the rules on this head laid down by Palladio, Scamozzi, or Vitruvius, which, as they were prescribed for the works of a different climate, can be of little service to us. Neither, on the other hand, should the whole front be an alternating of light and mullion, as in Elizabethan architecture, or we shall have the rooms too cold in winter.

These considerations are, however, to be in some measure influenced by regard to proportion; and on this subject there are laws which are applicable to all countries: of these laws great breaches have been committed, chiefly in reducing too much the solids—a fault conspicuous in many important erections in London and other places. There are laws prescribed by solidity which must never be violated. Piers between windows, it has been said, should never be less than the aperture: real architectural character requires that they be far more; but the proportion of pier to aperture must be governed by the order intended to be used, and the expression intended to be given—whether serious and grave, or lightsome and gay, or an intermediate shade. A building, I would however observe, where the size or number of the windows has reduced the solids to the appearance of mere props, may have some desirable qualities, but it will lack the dignity of classic art, and be wanting in architectural character itself. Where a large quantity of light is required, it is best obtained by grouping several windows together, that is to say, giving the needful amount of window opening in one composition of several compartments, as in the binated and Venetian arrangements—methods which afford great facility for effective decoration. The three-light window, in particular, is very susceptible of architectural and symmetrical embellishment.

General form, decoration, and disposition are the points next to be considered. Windows bear no inconsiderable part in expressing the purpose of buildings; and in their form, degree of richness, or simplicity of decoration, and their arrangement or relative positions, we have means of giving to each edifice its peculiar expression, significant of its destination.

In the general form of windows, it appears to me, we have not drawn upon nature in our Anglo-Classic Architecture to the extent that has been gone to in other styles. It must be obvious to the most cursory observer, that the curved line is not sufficiently appreciated by classic designers. The circular window, for instance

—a favourite form in pointed design,—in the classics, is banished to the barn and hayloft! Surely a general composition might be designed in which elliptical and circular shaped windows might be introduced into principal apartments with good effect, both inside and out. They would, perhaps, look best on a small scale, and the composition would have to be carefully adapted to them. The expense would preclude such forms from general use, but their occasional employment would relieve us from some portion of the monotony under which the eye is now oppressed.

The semi-circle for the head is an appropriate and noble form, and the arch that covers it a fit object of decoration: finished with square dressings it is still effective, and susceptible of much beauty. For mezzanines, and upper or inferior stories, square, circular, and semi-circular windows are not objectionable, but, with tasteful dressings, are proper and elegant objects, and give effect by contrast to the adjacent tier of oblong ones. Small windows are often required for an upper story in an important building, and this necessity is generally considered a difficulty; but such windows, however small or short, may each be made as ornamental and pleasing an object as any panel could be, and more powerful. Circular and circular-headed windows, in a circular wall, however they may exercise the geometric skill of the architect and mason, are objectionable, as the overhanging of the wall must ever have a disagreeable effect. The practice of diminishing windows in width upwards should be very cautiously resorted to: a gentle diminution may sometimes, in Greek design, have a pleasing effect: a very sensible one, on the contrary, can only harmonise with the pyramidal constructions of the Egyptians.

With regard to decoration, columns and pilasters may be employed with great advantage in the embellishment of windows, when not dwarfed by similar features used in the general decoration of the building; and additional effect may be given by stone pedestals and balconies. The propriety, however, of thus employing columns and entablatures, spite of Italian authority, has been questioned by our critics; and, in truth, at first sight, the practice seems irrational, and difficult to reconcile with a true theory of the art,—with the legitimate use and object of the orders. But if the cornice can be proved to be useful, and it doubtless can, then the rest are justified in coming in as its necessary supports and attendants. Now, cornices not only have the appearance of affording protection to the window from the violence of heavy rain, as in door-ways, but they do really yield such protection, and a great deal more than at first sight appears: yet all the protection from weather consistent with non-obstruction of light, is a worthy and valuable object; and this is generally gained by cornices, or might be gained. I say *might* be, for if they were kept nearer to the upper edge of the opening than they usually are, and made of a bolder projection, they would answer this purpose better. Lessening the width of frieze for this object would be justifiable, and would be attended with no ill effect. On the contrary, its shortness calls for it: short entablatures look best of the lowest gauge. The upper tier of windows being near to the main cornice of the building, have less need of this protection, and they are therefore generally without it.

There are forms of windows, however, against which no objections of this nature could be at all conceived. Grouped windows of two, three, or more lights, admit columbar decoration with the highest propriety, and are, so adorned, susceptible of great beauty of effect. Perhaps nothing more beautiful could be conceived in the way of window form and combination, than the Venetian window of semicircular-headed centre, arrayed in full classic costume. But there are many other arrangements in which the employment of columns are not only proper, but essential. Cornices to windows which are under protection of a portico, or as sometimes seen, close under the entablature of the building, which perhaps projects something before it, are indefensible. There should be no favouritism in window decoration; but difference in degree of ornament, or protection by cornices between upper and lower tier, or between windows in the same horizontal range, should arise, or appear to arise, from difference

in the quality or importance of the apartments to which they belong. A superior apartment may be considered to call for greater ornament on the exterior of the window as well as interior, and to demand also greater protection from weather, than inferior ones. Depth of recess is essential to effect in windows of whatever form or arrangement, with which might be combined the graceful effect of curvilinear reveals. Deep moulded or panelled jambs would look rich and imposing. Verandahs and porticoes merely for exterior shadow or effect, over windows through which the full light of day is desirable, are improper.

As to the arrangement or disposition of windows there is in many cases great difficulty, the laws of symmetry having generally to be observed, both within and without. In private dwellings, the requirements of convenience being numerous and imperative, the rules of symmetry admit of mitigation; but in public buildings strict symmetrical arrangement can seldom be dispensed with. In detached houses windows should be arranged according to the purposes of the apartments to which they belong, whether to be used for morning or evening, winter or summer, with some reference also to the direction of the winds, to encourage the admission of the more healthful breezes, and exclude as much as possible those of an opposite quality: also to command the finest and most extended prospects; for which purpose, projecting windows, as bows and bays, are useful, as well as agreeable, for affording a private recess in the room,—“pretty retiring places for conference”—ends, however, imperfectly answered, unless they be judiciously placed. How often do we see, in villas, bow-windows situated one on each side of an entrance door-way, in the same vertical plane, and consequently looking directly into and neutralising each other; not only destroying entirely the interior privacy, but obstructing half the exterior view that either would otherwise have afforded.

The nearer a window-sill approaches the floor, and the more the jambs are splayed, the more cheerful a room will look: placing the sill even with the floor, seems almost essential to the elegance of a drawing-room; while the opposite treatment gives the appearance of confinement and gloom, and, carried to an extreme, that is to say, by placing a short opening or window near the ceiling of a room, suggests a significant arrangement, as regards expression, for prison design, both within and without. In bed-rooms, of course, a certain height of window sill from the floor is requisite. Window heads should not extend quite up to the ceiling: the critical eye requires a space of wall between the window dressings and the cornice of the apartment. Between the windows in the different stories of a building, there must exist a relation of proportion, as well as a uniformity horizontally; and the intervals between the different heights is also an important subject of attention. Solidity requires, not only sufficient pier between windows, but sufficient spaces between the tiers of the different stories: not only is this demanded by solidity, both real and apparent, but the eye requires it for repose: it is essential to architectural character and effect. Ample space between stories is exceedingly favourable to this end in all styles of decoration.

A great deal of bad taste has been exhibited, in some of the most important buildings, in the design and disposition of the windows, and many entire failures have originated in this cause. While some architects have neglected the windows, others have been too lavish in their decoration, which has not been bestowed with that judgment and reserve which a due study of the ancients would have inspired. At St. Peter's Church at Rome, many of the window dressings are in a most vicious style, and exceptions could be made to other celebrated buildings of the same class. A fault of our own St. Paul's is having the two stories of windows too nearly equal, manifesting thereby a want of subordination and contrast of parts. As to domestic buildings, I have witnessed evidence of a better notion of composition in some of our older brick dwelling houses, than is shown at present. In some of these a simple division into few and great parts is obtained by uniting small ones; combining, for instance, with suitable masonry and decoration, two heights of windows. I do not allude to the dishonest



practice, which cannot be too much reproved, of making two heights of windows look like one, as in some modern Gothic designs. In a great majority of houses, other causes than bad taste have operated against beauty. A justifiable economy has no doubt had its share. How great an obstacle to the progress of architectural beauty the window tax has been, I need not say. Among the effects of economy in ordinary street architecture, is the patchy appearance caused by the use of the common detached stone head and sill. In every respectable brick building, an architrave or window jamb of some kind should be used to unite, and thus make the window a whole.

We come now to the filling up, or sash part, and here is the great defect of our windows: I am referring, as I have done all along, to erections of the classic style. Architecture is defined "the art of the beautiful in architecture;" its beauty of form is a language by which to express the idea of the architect, and awaken a definite emotion in the breast of the spectator, in harmony with the use and object of the building. Stone is thus to be fraught with meaning, and pregnant with sentiment; but here, in the matter of the window, comes a void, an expressionless mass, a hiatus in the composition, and this, too, in a part where expression and beauty were most to be expected. The window is to the façade what the eye (the window of the soul) is to the human countenance,—the most significant member,—the one from which the genius of the building, if I may so speak, should look out, and which should reflect, more than any other, the thought of the designer. There is analogy between architecture and poetry as between all the fine arts, and windows may be compared to the beautiful passages of a poem, those out of which the pure spirit of the poet, as said by Goethe, looks forth through open sparkling eyes. Let us see in what manner this importance is met: our window dressings boast their origin from the highest sources of decoration, but what is the window itself,—the window proper? The slightest glance will show that decoration of the latter is seldom if ever attempted. Within the architrave jambs of the window generally, design has not entered. Casting the eye over the windows of our churches and chapels, palaces and mansions, club-houses, courts of law, and halls of commerce, what do we find? The graces of architectural proportion and decorative expression are perchance lavished around, but within, a few equidistant cross-bars receive the glass, and enclose the opening. I refer to the vertically-sliding sash, used, not only in our humbler dwellings, but most commonly introduced into buildings where architectural decoration and character are aimed at; and I maintain that its employment, particularly in the latter class of edifices, is a solecism. If remarks before made be correct, it is evident, that the filling up a sash of a window is a matter of sufficient importance not only to call for thought and design along with the rest, but to demand peculiar care in its treatment, that it should be carefully wrought into harmony with the general design, and receive a beauty of detail and delicacy of finish corresponding with its intended expression. Its subdivisions, either, by agreeable form, should give pleasure to the eye, and satisfy its desire of beauty, or be made so small as to look like texture, rich or delicate as the general character of the building may dictate. Now instead of this being done, the common sash bars, as generally disposed, are a rude harsh interruption to the general effect, an infection upon the eye. I have witnessed their introduction into important buildings, and the effect is invariably to break at once all charm created by the surrounding architecture: they destroy breadth and harmony of effect, and confuse or contradict all contemplated expression. Many are the animadversions that have from time to time been passed upon windows: their decoration, form, relief, arrangement, and the rest, have been at different times found fault with, but it is in this matter of filling up that we are most deficient. Here is literally the widest field for improvement.\* S. H.

AN IRON LIGHTHOUSE has just been finished at Birmingham for Middleton Point, Saugor Island, India.

\* To be continued.

#### FAIL OF GALLERY AT RHUDDLAN CASTLE.

THE Welsh Bardic meeting at Rhuddlan Castle, known as the Eisteddod, was marred by the fall, on the 26th of September, of one of the temporary galleries, erected for the reception of spectators, by which several persons were seriously injured, but, miraculously, no life was lost. A special committee appointed to investigate the cause of the accident said,—“We attribute the accident entirely to the defective and unworkmanlike manner in which the timbers are put together at the west end of the castle, most of the supporters upon which the whole fabric rested being in several pieces, and not protected by braces or hold-fasts. Owing to these imperfections the superstructure was not sufficiently able to resist the oscillations, which must have been anticipated, from the applause that followed the performance of the first female candidate on the triple harp. We consider that such a palpable imperfection ought not to have existed, and that the conduct of the builder, or contractor, and also that of the other persons whose duty it was to receive the work from the contractor's hands and to report upon its efficiency, have been highly reprehensible. With regard to the culpable conduct of the builder in particular, we are unable to find words to express our censure and indignation.”

Neither Mr. O. Jones, the architect (known there as *Talhairn*), nor Mr. Evans, of Bangor, the contractor for the building, were present when the accident happened, but arrived soon after. The gallery was reinstated, and other portions of the structure strengthened.

At the close of the festival the architect came forward and expressed a wish that another architect should examine the building at his expense, and report whether the blame of the late accident rested with him or with the contractor.

The committee immediately appointed a person to survey the building, but we have not heard the result.

#### THINGS OF THE PAST.

A VERY curious discovery has been made in the mosque of St. Sophia, at Constantinople. In the course of cleansing and repairing the interior, the original decorations in mosaic have been brought to light, including, as we understand, a portrait of Constantine. Drawings have been made, and, are, we believe, on their way to England. The Sultan, to prevent the necessity of removing them, as their religion would require, has considerably ordered them to be covered up again.

Last week a Roman tessellated pavement was discovered at a locality called the Churchyard, Holcombe Farm, two miles from Lyme, and a little distance from Musbury Castle, a celebrated and very fine earthwork east of the valley of the Axe. The villa at this spot must have been a Roman station. The fact of this interesting discovery had hardly become known to the neighbourhood, when a determination to cover up the pavement was resolved upon by the owner of the estate, which was done on Saturday last week.

At Lyme, Kent, the “British Pompeii,” as it has been termed, although at present this title would raise false expectations in the minds of visitors, the works are going on slowly:—funds are needed.

We learn from the Bristol papers that in the course of alterations now being made in the premises, 56, Wine-street, the workmen have discovered, imbedded in the walls, and at a distance of about 15 feet from each other, two ancient pillars, which, it is evident, from their formation, at one time belonged to some public building, probably the corn-market, which in early times is understood to have been held near Wine-street.

Near Fontenay in France, between Soissons and Compiègne, foundations of Roman buildings have been found, covering a surface of more than 34,000 metres, and divided into more than 200 rooms or cells.

According to the *Literary Gazette*, Mr. Layard has discovered a statue in the pyramid at Nimroud. It is from four to five feet in height, in gypsum, elaborately carved, and very perfect.

There is also a high relief of the King, very beautifully executed, standing in an arch eight feet high, and covered with minute inscriptions. Mr. Layard's last communication is dated Akra, July 17, where, we are sorry to say, he had been confined by a severe attack of fever. The inefficient assistance he has received has caused him to over-exert himself, and thus he has been stopped for awhile on his way to Vau to secure inscriptions. The very important discoveries he is now making render it imperatively necessary that his exertions should not be stayed for want of funds.

A few days ago the brigantine *Apprentice* arrived in the St. Katharine Docks from Bus-sorah, having on board a great quantity of Assyrian and other antiquities and marbles, consigned to the trustees of the British Museum. Among them are the great bull from Nineveh, with a man's head and dragon's wings, weighing 12 tons, and a lion, sculptured in the same manner, weighing 9 tons. There are also several coffins, containing many curious relics of the manners and usages of Eastern countries regarding the ceremonies observed in burying their dead.

A letter from an American lady, to the *New York Literary World*, says,—“A new discovery has just been made at Heliopolis, in Egypt. Some of the fellahs, in digging for earth to use in the gardens which cover the remains of that once glorious city, came upon two stone pillars, so placed as to give the impression that they formed a side door or entrance, perhaps of a temple. The hieroglyphics are finely cut, and in excellent preservation; and the cartouch bears the name of Thothmes III., in whose reign, according to Wilkinson, the Exodus took place (B.C. 1491). There was found also a part of a wall, each brick of which bore the same cartouch.”

#### VENTILATION OF THE COURTS OF WESTMINSTER BY THE STEAM JET.

In your paper of last week, in an article headed “Protection of New Inventions from Piracy,” you say, “the Courts of Exchequer and Common Pleas at Westminster are to be ventilated under an infringement of a patent for ventilating by steam, taken out by a poor man now dead, on the 7th of May, 1844.” As the courts in question are about to be ventilated by an arrangement recommended by me, I presume it may be inferred that the alleged infringement is on my part. You will, therefore, possibly do me the favour to put your readers, who may have read this statement and are unacquainted with the subject, in possession of the following facts, which will enable them to judge how far any one was justified in taking out a patent in 1844? It may be seen, by abundance of published documents in the blue books, and other authorities, that I introduced the steam jet, as a motive power for producing currents of air, so long ago as 1826 (see evidence before a committee in the House of Lords, 1849); that, in 1827, I introduced it in steam-carriages on common roads; that in virtue of its action I was enabled to drive a steam-carriage on the turnpike-road from London to Bath, and from Bath back again to London, averaging a rate of fourteen miles per hour. (See Report of the House of Commons, 1832.) The steam jet was then publicly introduced, and the public were carried by its agency to and from Gloucester and Cheltenham every day for four months consecutively, when any one might have seen it in action. At this period railways were establishing; the Stockton and Darlington Railway was opened and worked by locomotive engines; their utmost speed was nine miles per hour for passenger traffic. I recommended the steam jet to the late Mr. Stephenson, to increase their speed; who thought, he said, “it might increase their rate to fourteen miles per hour.” He applied it to a locomotive engine at the opening of the Manchester and Liverpool Railway, and its speed was immediately increased from nine to thirty miles per hour. By recent improvements, the speed has been increased on the Great Western Railway to seventy; and I believe, in one instance, a rate of 100 miles per hour has been maintained. At this time it was applied to ventilate the Ophthalmic Hospital (see report of Lords and Commons on the New Palace). In 1835 I recommended it for the ventilation of coal-mines: my evidence is very full on this application, and is published in “The Report of the Committee of the House of Commons, 1835, on Accidents in Mines.” (See par. 3867.) It was fully reported by the South Shields Committee in 1839; and plans and sectional drawings published in their report. (See South Shields report on accidents in mines.) I recommended



it for the ventilation of the New Houses of Parliament (see report of committee), and it has been used for this purpose in the House of Lords ever since it was opened, and is still the only means used for its ventilation. Why was this alleged infringement not noticed by the patentee? For your information, and that of any poor man henceforth taking out a patent on any of the following subjects, I beg to say that the steam jet has been introduced for ventilation of coal-mines, extinguishing fires in collieries, refining of silver, smelting of iron, blowing off litharidge; superseding the air-pump for making of paper; refining of sugar. It has been used for the ventilation of sewers, ventilation of ships; applied to the steamboats on the river to increase their speed; for the condensation of muriatic acid. In one case (see evidence before the Lords) "it condenses upwards of four tons per week, which before spread destruction to miles around" (see evidence before the Lords last session)—and all successfully. For upwards of a quarter of a century, I have laboured hard to introduce this principle, and to impress upon the public its practical importance, without any personal advantage or money interest whatever. It is painful now to be obliged to speak of one's self; but it is more painful to remain silent under the unjust charge of attempting to infringe the patent of a poor man. Still I believe I should have passed it unnoticed had not her Majesty's Commissioners of Woods and Forests, and other parties high in authority, under whose direction it is about to be introduced into these courts, been indirectly included in the same charge. I am anxious to set the question right, and in conclusion beg to say that I have given the steam jet, with all its appliances, to the public: they have power to use it as they please, uninfluenced by any patent right whatsoever. It has been in their possession for the last twenty years, and no one has a right to take it from them by a patent now, nor had in 1844.\*

GOLDSWORTHY GURNEY.

#### MANAGEMENT OF ARCHITECTURAL COMPETITIONS.

I ENCLOSE a copy of some "Suggestions" for the guidance of committees and others desirous of obtaining competition designs which have been drawn up by the Bristol Society of Architects.

The society has been founded some months upon the same liberal system as the Liverpool Society, and I am happy to say, it includes a very large proportion of those persons who are interested in the arts of building and design in this city.

One of the first objects of the Society has been to arrive at fair proposals for the conduct of local competitions. After experience of the difficulty of adjusting any system by which architectural competition may be converted into an honourable course, the members do not suppose that all their suggestions can meet the views of every competitor; and it is for the purpose of eliciting remarks from yourself and your correspondents that I address you. The subject deserves careful consideration, and it calls for speedy adjustment.

Several members of our society will decline any local competition in which our suggestions are not incorporated in the "Instructions to Architects," but as many valuable hints may reach us through your pages, our "suggestions" may be made conformably to the wishes of a large majority of the competing members of our profession, and I trust and believe that they may be so modified as to become generally insisted upon by architects in every competition advertised.

SAMUEL CHARLES FRIPP.

"Propositions to be submitted to local committees advertising for competition designs, intended for their guidance in the preparation of instructions to architects.

1. Printed instructions, with a plan of the site, levels of ground, and borings, to show the nature of the foundation, to be given to each competitor on application.

2. The required accommodation to be stated as minutely as possible, extending to the divisions and number of floors, with the general areas of the principal apartments.

3. The total amount to be expended upon the building (exclusive of fixtures,† architect's commission, and salary of clerk of works) to be mentioned. The successful competitor to be required to find respectable and responsible contractors to complete the different works for the sum specified, in his own estimate, and in default thereof, to relinquish all claim to remuneration.

\* We merely quoted from a contemporary, as plainly stated.

† The term "fixtures" to include chimney-pieces, grates, waring, ventilating, and cooking apparatus, gas fittings, bell and paper hanging, and ornamental painting.

4. The time allowed for preparing designs to be in no case less than one calendar month.

5. All the designs to be drawn to the same scale, and tinted in Indian ink only. A general specification to accompany them, describing materials and construction.

6. Perspective drawings not to be considered necessary, but admissible if tinted in Indian ink only.

7. All designs sent in to have the names and addresses of the authors affixed.

8. The designs to be exhibited publicly for one week previous to the decision. The parties advertising to be assisted in their selection by the opinion and judgment of one or more eminent (non-competing) architects named by the committee, and approved of by the majority of the competitors.

9. The author of the most approved design to be employed as architect of the building, with the usual per centage. Premiums to be awarded to the second and third best designs.

Form of letter to be addressed to local committees about to advertise for competition designs:—

Society of Architects' Room,  
No. 1, Trinity-street, Bristol.

GENTLEMEN,—I beg to submit for your perusal and consideration the enclosed propositions, having reference to architectural competitions.

They have been drawn up with much care and attention by the council of the Bristol Society of Architects, and almost unanimously agreed to by the members. Such being the case, it is not too much to infer that the majority of the members of the profession in the whole kingdom would coincide in the same views.

The glaring injustice of the decisions, and the flagrant mis-management of the generality of competition cases for several years back, are so notorious, that the Council of the Bristol Society of Architects have resolved, whenever opportunity offers, to exert their utmost influence to effect an improvement in the system, by urging upon committees advertising the necessity of a code of instructions assimilating as nearly as may be to the enclosed form, as it is only by such means and by the strictest adherence to the instructions issued, that committees can possibly decide with that fairness and honesty which gratuitous services not only deserve, but should command. These suggestions are presented with the best intentions, and it is hoped will be received in the same spirit in which they are offered.

To be signed on behalf of the Society by the

PRESIDENT.

P.S.—It is earnestly requested that no solicitation for interest by any architect shall be entertained, or have weight with your committee."

#### THE INTERNATIONAL EXHIBITION.

Now that the more inert and less enterprising, prejudiced, unwilling, or alarmed, portion of our industrial leaders and manufacturers, feel that they are fairly in for it,—that other nations will take the exhibition alone for the ability,—and that the commissioners must necessarily award the honours of precedence and superiority to exhibited ability and excellence alone, whether foreign or native,—they appear to be at least alive to the risks they run if not to the full assurance of success, and are swelling the ranks of those who from the outset looked with hopeful confidence to the issue. It appears that the demand made for space in the House of Glass by English manufacturers now exceeds that allotted, to an extent that would hardly be credited.

"The most feasible mode of accounting for this," says a contemporary, in allusion to the stir throughout the country, "is to conclude that John Bull has been shamed into bettering himself by the enthusiasm displayed abroad. The 'organising' alertness of the French, the solemn and solid preparation of Germany, the eager and orderly activity of our colonies, have at last roused him from his torpor."

The statistics of the claims for space already made are interesting. The space required for machinery connected with manufacturing, engineering, agricultural, and other purposes, and mechanical inventions illustrative of the agents which human ingenuity brings to bear upon the products of nature, is about twice as great as that required for manufactures illustrative of the result produced by the operation of human industry upon natural produce. "Compared with raw materials and produce illustrative of the natural productions on which human industry is employed, the space required for machinery is eleven times larger, while, as compared with sculpture, models,

and the plastic arts generally, showing the taste and skill displayed in applications of human industry, it is rather more than thirteen times larger. The exact proportion which each section bears to each other, expressed in figures, taking the fine arts as the unit, would be—Fine arts, 1; raw materials and produce, 1.02; manufactures, 6.7; machinery and mechanics, 13.2." It was perhaps to be expected, however, that machinery would occupy much more space than manufactures or raw materials. As for the latter, certainly far more might be done than may at first sight seem to be possible, at least in the mineral section of such materials. The success of the agricultural and other exhibitions affords a sufficient guarantee that the vegetable and animal departments, together with all sorts of cognate implements and apparatus, will be fully and satisfactorily represented; but the section of the mineral kingdom is a novelty, and hence the executive committee are at this moment engaged in drawing attention to the fact that in some little detail almost every parish might contribute much, not only to the completeness of the Great Exhibition, but to the development of its own peculiar resources, if the opportunity be properly made known. To this end we shall be happy to assist in our own more limited sphere. We might hint, for instance, to many of our provincial readers, that numerous localities might supply marbles and stones of great variety and utility in building, though at present unknown beyond their own locality.

Clays of different kinds suitable for pottery abound in many parts of the United Kingdom, which would be likely to obtain a very extended commercial value if they were brought forward and made known on this occasion, accompanied, if possible, by some manufactured article. In Dorsetshire, for example, a very common yellow earthenware is made of the cheapest kind, which certainly ought to be shown. Any fine sands which may be considered as suitable for glass-making should be exhibited, which may easily be done in glass phials. A specimen of such sands should be contributed from every locality where they can be found. The immense value of such discoveries to the localities themselves need not be enlarged on. Amongst other mineral substances, innumerable, which might be made to minister to the prosperity of the districts whence they were sent, we may, to give some little idea of the variety and range of such materials, as well as of the objects and purposes of the exhibition, instance stones useful for personal decoration found on many parts of our coasts and rivers,—even pearls inclusive, also agates, jets, cornelians; whilst from the mountainous districts might come beautiful spars, rock crystals, and other similar stones. Useful substances, such as fullers' earth, coprolites, green sand, and sulphate of lime might be had from districts where they have probably lain hidden and unknown till now searched out: a youth of our acquaintance, for instance, lately collected a good deal of finely crystallized sulphate of lime on the northern outskirts of the metropolis, where it was turned up, for the first time it may be, in the excavations for the Great Northern Railway. We do not mean to point this out as a fact of any importance, but just to show how useful materials may turn up. The recent purchaser of an estate in Kent has been the first, it is said, to find in it clay so suitable for pottery, that a large establishment erected there now keeps the surplus labour of agricultural villages in the vicinity employed. He is also sending tons of a beautiful sand for glass-making to the metropolis, and has discovered some excellent building stone, all now for the first time unearthed as so much hidden treasure. Such hints as these we hope will be useful.

Foreign contributions, we perceive, are still pouring in, or at least demands for space for them. The Danes, an industrious people, propose to exhibit printing machinery, porcelain (painted and bisque), shell carving, bronzes, clockwork, rifles, musical instruments, furniture, ivory turnings, stylographic plates, oilcloths, lace, wool netting, Randers gloves (with leather specimens), fur carpets, stearine candles, playing cards, white glue, and statuary. Mr. Priaux, of Southampton, we perceive, has followed the example of Mr. T. Hill, of same place, and others connected with the



transfer of foreign goods, in offering to receive goods from Paris and elsewhere on the Continent, for the International Exhibition, free of any charge excepting expenses actually paid out, and has arranged with his agents in Paris and London accordingly. It would be commendable in many other shippers and carriers to imitate such an example.

#### BUILDING NOTES IN IRELAND.

THE Board of Public Works are erecting a new lunatic asylum at Sligo, according to plans furnished by Mr. Wm. D. Butler, architect; also one at Cork, of which Mr. W. Atkins is the architect.

The Poor-Law Commissioners are erecting union workhouses at Strokestown, county Roscommon, Mount Bellew, and Middleton, according to drawings furnished by their architect, Mr. George Wilkinson.

The interior of Father Mathews's chapel, Cork, is approaching completion, from the designs of Mr. W. Atkins, architect. The open framed roof is of red pine, coloured to imitate oak. The style is Gothic. A memorial stained-glass window, by Gibbs, of London, is in the northern or altar end. It represents eight of the most remarkable passages in the life of the Redeemer. This window cost 500*l*. On the lower part it is stated that it was erected to the memory of the late Daniel O'Connell, Esq. M.P.

The south side of Belgrave-square, Monkstown, has been just completed: the houses are of a superior class, and have been erected from the designs of Mr. John Bourke, architect, at a cost of nearly 9,000*l*.

Saint Mary's convent, at Cabra, has been lately considerably augmented: two new wings have been built, one of which contains the female departments of the Catholic deaf and dumb Institution. Mr. Bourke is the architect. Cost, 3,000*l*.

Saint Mary's convent, at Kingstown, has been much extended. A new wing, containing additional cells, refectory, community-room, with a large chapel, has been built. The altar, about 9 feet high, is of wood, and composed of four Corinthian columns, surmounted by an entablature and a pediment. At each side there are wings, with doors leading to vestry, &c., having entablature extended thereon, and surmounted by a balustrade. It is painted in imitation of marble. The style of chapel is Grecian. Cost of additions about 2,000*l*. The drawings have been furnished by the last-named architect.

An order has been issued for the abolition of Newgate as a city gaol, and preparations are being made for its conversion into a depot for the reception of convicts.

The works on the line of the Great Southern and Western Railway, between Mallow and Cork, which are by far the most important and heaviest on the entire extent of this railway, have been completed in a satisfactory manner by Mr. Dargan. The second line of rails is laid, and the whole of the permanent way finished. The water-channels are formed, and cleaned out along the cuttings: a short distance of wire fencing is in hand, which is the only work remaining to be done. The slip in the cutting, on the south side of the embankment at Mallow, which was at first so troublesome, has been rendered perfectly secure and firm by a proper drainage. The new station at Kilbarry is in an advanced state: the roof of the shed is on, and the whole will be ready for traffic in a few days. In consequence of the works at the tunnel having been partially suspended in May last, the progress was not so great as it would otherwise have been. Their present state is as follows:—The excavation at the north extends to a distance of 1,330 feet from the face, and the tunnel has been constructed to the full width and height at that end, for an extent of 1,140 feet. At the third shaft, the north heading has been driven 173 feet, and the south heading 195 feet. The tunnel, at that shaft, has been formed to an extent of 160 feet: at the south end, towards Glannire road, the heading has been driven 1,200 feet, and the tunnel is excavated to its full height and width for a distance of 690 feet. The second line of rails from Mallow to Cork has been examined by the Government inspector, and

he has highly approved of it. Sir John McNeill, engineer.

The committee of the Mendicity Institution have awarded the premium of five guineas for the best design to convert a portion of the present buildings into baths and washhouses to Mr. John S. Butler, architect.

The guardians of the Abbeisle Union have advertised for tenders for the erection of alterations and additions to their workhouse, according to plans, &c., furnished by the Poor-law Commissioners' architect, Mr. Wilkinson.\*

#### MASONS' AND SCULPTORS' PROVIDENT INSTITUTION.

A SPECIAL general meeting of the subscribers and donors to this Institution was held at the Mechanics' Institution, Westminster, on Tuesday last, Mr. Tite, F.R.S. the president, in the chair. The meeting was respectfully attended, and, amongst others, we were glad to see a good few wives and daughters, who have all, or ought to have, a deep interest in the success of such an Institution as this.

The chief purpose of calling the meeting was, that the Managing Committee might have the sanction of the members and donors to the appointment of two pensioners. A report was read recommending this, and congratulating the Society that they were now in a position to do so. The Chairman explained the principal business of the evening, which also included the appointment of a sub-treasurer (Mr. Farrow), and a collector. As to the appointment of pensioners, he had himself urged that some such step should be taken, to show the utility of the Institution, and that they were in earnest. One of the candidates for the pensions, which would amount to seven shillings a-week, was a young man, who had belonged to this Institution, as a member, at a time when he was much more likely to help the institution than to require help from it; but such was the uncertainty of human affairs, that what they could do for others to day, they might require others to do for them to-morrow. An affliction of Providence had rendered him helpless, and he had no other resource but to rely on this his own society and brotherhood. Such were the fruits of self-reliance, and a will to help one another. The second pensioner was an old man, whose energies were exhausted in labours like their own, and who now relied on them alone for support. There might have been other candidates, but, unfortunately for themselves, they had not persevered with their subscriptions, and, as they knew, it could only be on regular and steady subscribers that such benefits could be conferred. The society, he was happy to say, was increasing in number, but what he desired was, not even twenties or thirties, but large numbers, for by these only could the provident purposes of such an institution, for the benefit of those among them who might chance to require its aid, be successfully wrought out.

The report was unanimously adopted, the pensioners to receive their first week's pension this Saturday.

In response to a question asked, the chairman explained, that while the usual subscription of 10*s*. a-year entitled the subscriber to a vote in the appointment of pensioners, as does a donation of 5*l*., a subscription of 2*l*. 10*s*. a-year could secure the highest privilege attainable by any donation however large, namely, five votes: it was a mistake to suppose that donors had any other or greater privilege.

#### NOTES IN THE PROVINCES.

THE foundation-stone of a new congregational chapel, to hold 1,200, was laid at Cheltenham by A. O. Wells, Esq. of Bristol, on the 25th ult., in the presence of upwards of 4,000 spectators. The style of the building will be Decorated, and the cost 4,500*l*. The works will be executed by contractors in each of the branches of the building trade, as the building committee resolved "that the building should not be monopolised by one person, but that each tradesman should carry out the works belonging to his particular branch." Mr. S. Onley, jun., is the architect.—On Tuesday

\* Erratum.—In a previous article, the viaduct over Valley at Craigmare was misdescribed as Viaduct over the Bayne.

in last week the first stone of the National Schools at Brompton, Chatham, was laid by Mrs. Cook, the wife of the incumbent of the parish. The Ordnance have presented a site, and the Admiralty a grant in aid. The schools will be for 300 children.—In some parts of Leicester, according to the local Journal, soft water is selling at 3*d*. a bucket.—Exertions are being made in Wisbech to erect by shares a building suitable for public assemblies, meetings, concerts, reading, and temperance rooms, &c.—A public subscription is in progress for the repairs of St. Alban's Church, Worcester. The sum required is only 250*l*.—The first stone of Trinity Chapel of Ease was laid at Malvern on Wednesday week. Architect, Mr. Daukes: Builder, Mr. Haynes.—The Queen's Hotel at Cheltenham, which cost 47,000*l*., including the land, and the original rental of which was 2,100*l*. per annum, was offered for sale by auction lately. The highest bid was 14,900*l*., and it was bought in at 18,000*l*.

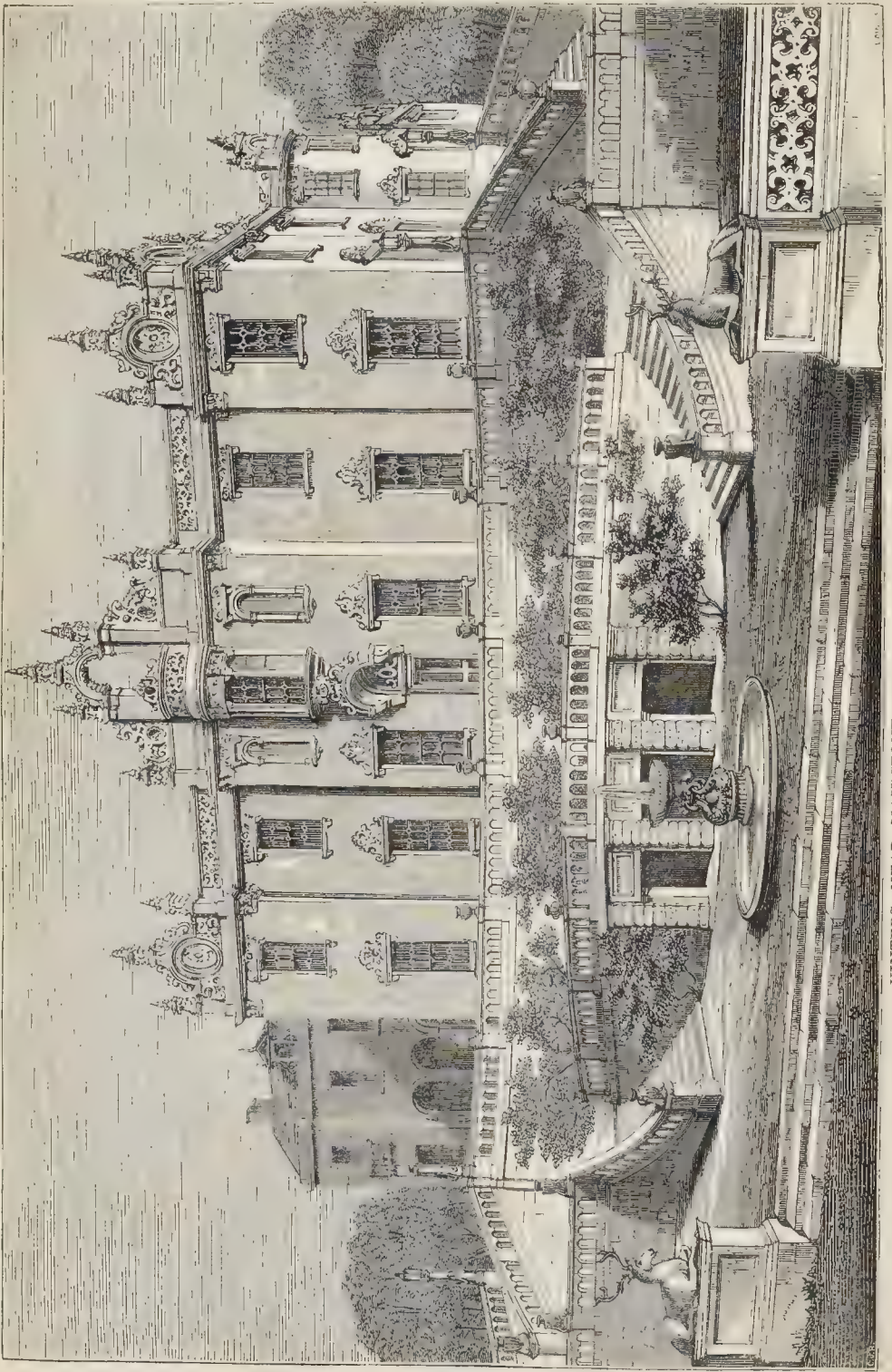
—The New Exhibition Hall, in which it is intended to hold the Birmingham Cattle Show, is now in course of erection. It will be about 224 feet by 212, enclosing nearly an acre and a quarter of land. The roof will be divided into five compartments, supported externally by the enclosing walls, and internally by cast-iron columns; but the building is so constructed that it can readily be divided into five separate compartments, each having a distinct entrance from King Alfred's and King Edward's-places. The walls are to be of blue and red bricks, the roof of timber, with wrought-iron ties, and covered with slate, except that portion occupied by the skylights, which will be glazed with strong sheet-glass. The middle of each compartment will be forty-three feet, except the centre one, which will be forty-seven feet, and surmounted by a clerestory to give greater altitude and light. The elevation is of the Roman Doric order, having a succession of pilasters along the principal frontages, and in the centre of each is a portico.

—Six main sewers are about to be put down in Walsall by the local improvement commissioners.—It is said that the operative tailors of Liverpool, to the number of some 700 or 800, are about to erect a public hall, and execute orders on the co-operative principle.—The Manchester corporation are allowing White's gas apparatus to be erected at their gas works for the conversion of the gas tar into gas.—A new chimney at Broughton, about 35 yards high, lately fell to the ground, carrying part of a mill with it. The cause of the fall is not stated.—A chimney, 130 yards high, has just been completed at Weston, near Runcorn: it contains a million of bricks, and was built by Mr. White, of Runcorn, in five months.—Shares to the amount of about 1,000*l*. have been taken towards the sum necessary to erect a public hall at Sheffield.

—The premises of the Mechanics' Institute at Carlisle are about to be altered and repaired on plans by Mr. Hodgson, of Post-office Court, Carlisle, architect.—A sum of 100,000*l*., left by a Mr. John Morgan, for an hospital to be established at Dundee, for the education of the poor children of the nine trades, is likely to have the substance sucked out of it by the Scotch lawyers, for the benefit of the heirs at law on the one hand, and the poor children on the other.

**NORTH SIDE OF CHURCHYARDS.**—One of your writers has recently endeavoured to explain the popular dislike to burial on the north side of the church, by reference to the place of the churchyard cross, the sunniness, and the greater resort of the people to the south. These are not only meagre reasons, but they are incorrect. The doctrine of regions was coeval with the death of our Lord. The east was the realm of the oracles; the especial Throne of God. The west was the domain of the people; the Galilee of all nations was there. The south, the land of the mid-day, was sacred to things heavenly and divine. The north was the devoted region of Satan and his hosts; the lair of demons and their haunt. In some of our ancient churches, over against the font, and in the northern walls, there was a devil's door. It was thrown open at every baptism for the escape of the fiend, and at all other seasons carefully closed. Hence came the old dislike to sepulture at the north.—*Notes and Queries.*





VINTERS, NEAR MAIDSTONE.—MR. C. J. RICHARDSON, ARCHITECT.



## DESIGNS FOR KNOCKERS.

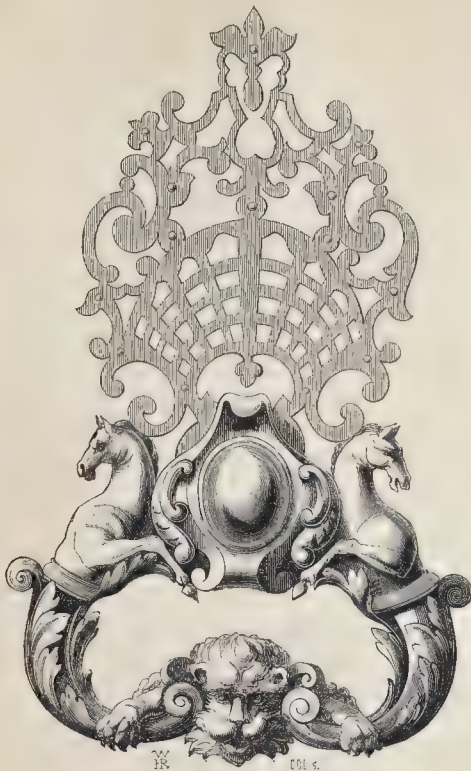


Fig. 1.

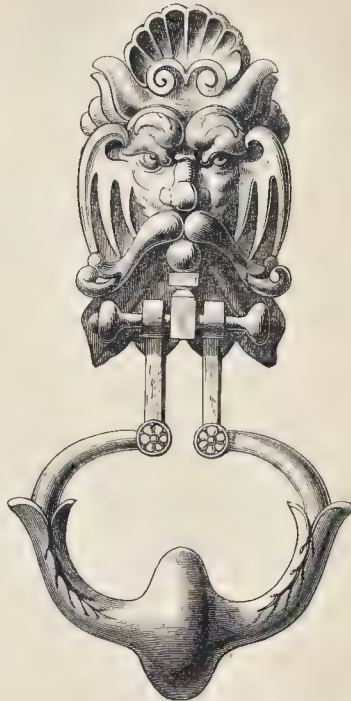


Fig. 2.

VINTERS, NEAR MAIDSTONE,  
THE SEAT OF MR. JAMES WHATMAN.

THIS house, situate only a mile from Maidstone in the middle of an extensive and richly wooded park, stands on the site of one erected by Roger Vinter, about the year 1343; some part of the old building remains, with considerable portions of later James I. architecture.

The house is now being considerably enlarged and fronted—it stands on a steep hill, composed of the Kentish rag stone: that portion of the hill in front of the house is being excavated, and will be laid out in terraces; the stone got out is used in the construction of the building; all the carved work is in Caen stone; the ornamental window-heads, meant to conceal roller blinds, are of cast iron, coloured so as to harmonise with the Caen stone.—Mr. C. J. Richardson is the architect.

## DESIGNS FOR KNOCKERS.

THE excellence of design exhibited in the old decorative ironwork of the French metropolis is, as we have already remarked, well worthy of study and imitation, and it would appear that the opportunity has not been thrown away by the artists of Paris of the present day, who certainly evince more taste than we do in the production of embellishments in iron for exterior purposes. The subject is one which merits consideration, because, by a judicious combination (as formerly used) of wrought and cast-iron, an agreeable effect could be imparted to our doors and doorways, at a comparatively trifling cost. Ironwork for ecclesiastical use has of late years made remarkable strides, but we now urge that the material is capable of similar improvement as an accessory to domestic architecture. As supplying hints, some examples of old knockers from doors in Paris may prove useful to many of our readers. It

will be seen, that while some of the specimens are as late as the beginning of the reign of Louis XIV., others must be ascribed to an earlier period. The street-doors from which we have stolen the knockers are in Rue d'Enfer, No. 37—fig. 1.; Rue Hautefeuille, No. 8—fig. 2. We will give others.

## BITS OF GLASS.

In the staple articles of British manufacture in glass, says the *Birmingham Journal*, foreign competition in the home market is considerably lessened since 1846. "In window glass the consumption has fallen from 12,000 cwts. to 7,000; in plate glass from 69,000 square feet to 50,000; and in flint glass the consumption in 1849 was less than in 1846. A few facts will show that the extent to which we import this article is almost as insignificant as in the manufactures of metals. For example, while in 1849 our import of bottles was 43,000 cwts. our exports amounted to 232,476 cwts. In window glass we imported 7,639 cwts. and exported 17,255 cwts. In flint glass our imports were 26,000 lbs. while the exports amounted to no less than 2,046,544 lbs. Thus it will be seen that in this manufacture the amount of foreign competition is a mere fraction compared with the magnitude of even a portion of our transactions. The increase on foreign imports of ornamental glass from 1846 to 1849 inclusive was very great, being no less than 370,000 lbs. on 380,928 lbs. in all in 1846;" but there is already a reaction, and the Germans and other foreigners, we observe, are becoming alarmed at the recent advances of British manufacture in decorative or ornamental glass.—Mr. Wm. Blinkhorn, of Sutton, Lancashire, has patented some improvements in the manufacture of glass. He proposes to employ a hollow casting-table, the upper part and sides cast in one piece, with flanges rivetted to the

bottom plate: a stream of water is kept running through this table, in the lower part on which are ovens for heating the water and the top plate to about 120 degrees Fah. to prevent injury to the plate when the metal is first poured from the crucible or pot on to the table. When, after repeated castings, the top plate of the table has been heated, the fires are raked out, and the temperature kept down to the required degree by the stream of cold water running through, or by means of several jets of cold water caused to play against the under surface of the top plate. The patentee also claims the constructing and arranging of machinery in such manner as that the plates shall be rolled thereby upon the casting-table, and transferred thereby from the casting-table to the annealing kiln.—The new processes of imitating gold, silver, and precious stones, in glass, have suggested the revival of an idea, some time ago noted in *THE BUILDER*, of applying such ornamental glass to the key-boards of the piano-forte, in a tasteful variety or iridescence of colours, in place of the cold black and white alternation hitherto used. As then remarked, if the new invention be not as cold and unpleasant to the touch as the ivory and ebony are to the eye, and if not too smooth and slippery for the gentle cushions usually applied to such electrifiers, it would add new grace to an instrument which is so often already a centre of varied attractions.—A memorial window of three lights has been executed by the Messrs. Pemberton, of Newhall-hill, for erection in the church at Claverley, near Wolverhampton. Another memorial window has just been completed for Malpas Church, Monmouthshire, by Mr. George Rogers, of Worcester; it is also a triple light. It is now proposed to fill one or both of the great transept windows of Worcester Cathedral, in place of the eastern one, with stained glass, as a memorial to the late Queen Dowager; 500*l.* are calculated on.



## APPLICATION OF IRON TO RAILWAY STRUCTURES.

In August, 1847, a royal commission was issued appointing Lord Wrottesley, the Rev. R. Willis, Captain James, Mr. George Rennie, Mr. William Cubitt, and Mr. Eaton Hodgkinson, Commissioners, and Lieutenant Douglas Galton, of the Royal Engineers, as Secretaries, to inquire into the effect of concussion and vibration upon the strength of cast-iron, and to examine the action of weights moving over bridges subject to deflection compared with the action of the same weights at rest. The sum of 3,000*l.* was put at their disposal for experiments. Long ago we laid before our readers the chief results of the inquiry in a notice of a lecture delivered by Mr. Willis, before the British Association, at Birmingham. The Report, which has since been printed, will be found to contain some useful information on a subject upon which in practice engineers at present are unable to apply principles with confidence. We looked, however, for more. The commissioners direct attention to the following general conclusions arrived at from the experiments made and the information collected by them in the course of the inquiry:—"That it appears advisable for engineers in contracting for castings to stipulate for iron to bear a certain weight, instead of endeavouring to procure a specified mixture. That to calculate the strength of a particular iron for large castings the bars used as a unit should be equal in thickness to the thickest part of the proposed casting. That, as it has been shown that to resist the effects of reiterated flexure, iron should scarcely be allowed to suffer a deflection equal to one-third of its ultimate deflection, and since the deflection produced by a given load is increased by the effects of percussion, it is advisable that the greatest load in railway bridges should in no case exceed one-sixth of the weight which would break the beam when laid on at rest in the centre. That, as it has appeared that the effect of velocity communicated to a load is to increase the deflection that it would produce if set at rest upon the bridge; also, that the dynamical increase in bridges of less than 40 feet in length is of sufficient importance to demand attention, and may even for lengths of 20 feet become more than one-half of the statical deflection at high velocities, but can be diminished by increasing the stiffness of the bridge; it is advisable that, for short bridges especially, the increased deflection should be calculated from the greatest load and highest velocity to which the bridge may be liable; and that a weight which would statically produce the same deflection should, in estimating the strength of the structure, be considered as the greatest load to which the bridge is subject. Lastly, the power of a beam to resist impact varies with the mass of the beam, the striking body being the same, and by increasing the inertia of the beam without adding to its strength, the power to resist impact is within certain limits also increased. Hence it follows that weight is an important consideration in structures exposed to concussions."

## SCENERY AND DECORATION.

*The Royal Princess's Theatre, Oxford-street.*—We were not wrong when we said that particular attention would be paid by the new management of this theatre to the scenic arrangements: the two pieces that have been produced, namely, "Twelfth Night," and "Hamlet," fully bear us out. In the second, wherein Mr. Kean plays Hamlet, with very nice discrimination, an admirable congruence has been preserved. The artist has adopted the Romanesque style of architecture, and has not departed from it throughout. The exterior of the castle is a charming scene, with an excellent effect of extent and grandeur. For the Play scene, the old conventional arrangement has been abandoned: the mimic stage is formed by screening off a portion of the apartment with tapestry. For the burial scene we have a good exterior of a Romanesque church, slightly marred by a nondescript monument in the church-yard, on the left hand. All the architectural portions are painted with knowledge and a bold hand, and do great credit to the executants. Mr. W. Gordon and Mr. F. Lloyds are the artists

attached to the theatre, but the scenery for this particular play has had the advantage of Mr. T. Grieve's superintendence. The scenery for "Twelfth Night" is also capably painted, especially a view out of the duke's palace over a great extent of gardens and country, with archways and fountains, and a Prouish street scene, but is not so congruous. The gateway, for example, in first act, with mansion at back (capitally painted), does not belong to the country,—Illyria.

*Her Majesty's Theatre.*—Considerable changes are being made in the interior of Her Majesty's Theatre, to fit it for a series of promenade concerts. All the seats in the pit have been removed, and the partitions in all the tiers of boxes, with the exception of the grand tier. The promenade will remain on the level of the pit floor, and have a flight of steps on each side up to the level of the stage. The orchestra, to hold ninety musicians, will be partly on the stage, partly in the promenade. All the machinery, &c. over the stage has been removed to admit a tent-like covering, to form a grand saloon, which will be adorned with statues, &c. Mr. Johnson is the architect, and Mr. Wint the builder employed.

*Decoration of Plymouth Theatre.*—According to a correspondent (who states that the remarks which appear in our pages from time to time on scene-painting and decoration have given an impulse to theatrical artists all over the country which is producing good results), the theatre at Plymouth has been thoroughly redecorated by Mr. F. M. Johnson. The ground-work of the front of the boxes is white, upon which are introduced groupings of flowers and other devices. The lining of the interior is crimson. In the centre of the ceiling is a painting representing the "Hours leading out the Horses of the Sun." The pillars of the proscenium are rendered a dead white, the mouldings being gilt, and in place of the doors on either side, two niches have been formed, in each of which, standing upon a pedestal, is a white figure, one representing Ceres, and the other Flora. Immediately over these are two gilt designs of rail-work slightly projecting in front of the boxes; and in the centre of the sloped arch above, is a copy of Maclise's fresco from "Comus," which is in the Garden Pavilion of Buckingham Palace.

## Miscellanea.

*RAILWAY JOTTINGS.*—In consequence of disputes about the occupation of the joint station at Chester, the London and North-Western directors have resolved to erect a new one for their own through traffic, the Chester and Holyhead and Chester and Birkenhead Companies to be invited in free of charge. Plans and estimates are being prepared.—The Worcester railway station, for temporary occupation, is nearly completed, and the branch line of rails to the city has been laid throughout.—The directors of the Chester and Holyhead are about to roof the tubes of the Britannia bridge, with about 66,000 square feet of galvanized iron, or galvanized tinued iron, in 3,640 sheets, corrugated and curved, each 5 feet 11 inches by 3 feet: 2,760 feet of galvanized spouting are also to be laid on.—The contracts for some portions of the Britton Ferry Dock works, at Neath, have been let, and will be immediately commenced.—The amount of locomotion in and out of London on Saturday and Monday last, by the railway excursion trains, says the *Times*, was of an unusual character. Nearly all the principal railways had an equipment of excursion trains. The Great Western had three special excursion trains, two out of and one into London. The latter left Bristol on Saturday at 7 o'clock, with 1,800 passengers, or about 1,000*l.* for three days' excursion. All the excursions were carried out in good time and with perfect safety to the multitudes conveyed, and the heavy showers that fell on their arrival caused every available vehicle to be in immediate requisition.—Railways are making progress in New South Wales. The Sydney Company have complied with the deposit regulation, necessary to their legal existence and commencement of operations.—A correspondent complains, and he is only one of a dozen, that

heavy goods have been detained from him at the London terminus of the South Eastern Railway for no less than eight days, and that the officials recommended him to send them by carrier when there was not sufficient to load a truck! They seem to forget that the railway authorities have run the carriers not only off the road, but off the rail itself.

*STATE ENCOURAGEMENT OF ART.*—All eminently civilised states, from the Pharaohs or Semiramises to the present day, have devoted much attention to the public cultivation of the Arts. What should we now know of Egypt, but for its public monuments? How much glory have the Arts not added to Greece, notwithstanding its finished literature? How much glory have the Arts added to Great Britain?—We know what Greece did after the Persian war: its Arts seem to have raised it, as it were, by enchantment to an almost unapproachable grandeur: a single one of its public monuments, the Olympian Jupiter, was for many hundreds of years visited as one of the wonders of the world; and even now Elis, after thousands of years, is, we may almost say, the envy of the world for its achievement of this single work, a source of joy and wealth while it endured, and of glory for ever. Now let us turn to another picture: England, too, after its great war, determined to commemorate its victories likewise: this was done in the shape of some dozen marble monuments to its admirals, generals, and statesmen, in the churches of St. Peter and St. Paul; and the British public, who have already paid for the monuments, are allowed at certain times to look at them upon the payment of an additional few pence per head, to defray the expense of the showmen; a proceeding truly worthy of a great nation! Of all the penny-wisdoms and pound-follies of a state, there is no better illustration than the public treatment of Art in this country.—*Art-Journal.*

*THE IRON TRADE.*—The continued make of more iron than is now wanted has induced the Welsh manufacturers to propose to their rivals in Staffordshire a combination of the trade in these districts, as well as in the north, to reduce the unnecessary amount of the manufacture. The Staffordshire masters are holding their quarterly meetings again, and have resolved not to attempt to raise the present nominal prices; but, in fact, there is reason to believe that sales have been made at even lower prices than ever. As remarked by a Birmingham paper, any attempt in the meantime to raise prices would only tend still further to diminish the sale, at least in foreign markets. It is proposed to reduce the make by at least one-third. As for the poor operatives, it is clear that the sooner a number of them look out for some other sort of employment the better.—In allusion to a mode of supporting the Scottish iron trade, already noticed, we find it stated in a circular of Mr. Hu. Ferguson's, of Glasgow, that notwithstanding the bad principle and repute of iron scrip, business has been done on the old footing, at a trifling advance, and the price is now stated 42s. 6d. No. 1, and mixed Nos. cash f.o.b. The present stock of pigs, in yards and makers' hands, may be represented at about 180,000 tons, which will probably be increased by 30,000 tons at 31st December next. Thus the make has been much less in 1850 than 1849.

*STEALING BRICKS.*—A case at Wands-worth is at present exciting no little interest. Messrs. Locke and Nesham, the contractors for the new prison, have had upwards of 100,000 bricks, out of 5,000,000 consigned to them, stolen while on their way to the prison. Many of the stolen bricks have been traced, it is said, into the hands of persons ranking as respectable people, and W. R. Coomber, a builder, residing at Bridge-road, Battersea, William Goddard, John Savage, and Charles Onley have been examined, the three latter on a charge of being concerned in stealing them, and the first-named on a charge of knowingly and feloniously receiving a large quantity of the bricks stolen. In the course of the examination it was stated by Mr. Jewell, the foreman at the prison, that the value or cost of the bricks was 26s. a thousand, and the drawing, &c., 5s. They were supplied by Mr. Everest, of Rochester, through Mr. Pilton, of Kensington, his agent, and were stock bricks of the best sort. The parties were remanded—Coomber on bail.



**THE FASTNETT ROCK LIGHTHOUSE.**—The last portion (the dome) of this immense structure left the foundry of Messrs. John and Robert Mallett, on its way from this city (Dublin) to the Rock, for erection, this present week. Its engineer and designer is Mr. George Halpin, C. E., of the Ballast Corporation, under which body it was contracted for. The whole shell is of iron. The tower, above 25 feet diameter at base, and above 80 feet in height to gallery floor, is composed of plates of cast iron of nearly 1½ inch in thickness, flanged-jointed; all exactly jointed by the planing-machine, and bolted together. This great conical tower is surmounted by a bold projecting cornice and gallery, above which the tower again rises some feet. The whole structure internally is lined with brickwork and masonry, the floors of stone, and the staircases, from loft to loft, of cast iron. Through the centre descends a hollow column of cast iron, to allow the movement of the great weight which is to keep the revolving light in motion. The whole is bolted down at base to the solid rock, and further steadied by being filled up solid to some height with masonry. As absolutely an Irish work—designed by an Irish engineer, and executed (without the alteration of a line from the original contract designs) by an Irish firm, and by native workmen erected on the most southerly spot of Irish land—it is likely to stand for ages an object justly of some national pride.—*Inspector.*

**GUARDIANS AND CLERKS OF WORKS.**—A meeting of the Devonport Guardians was held last week to appoint a clerk of the works for the new workhouse. One named by the architect was recommended by the workhouse committee. Some of the guardians said they thought it very undesirable to appoint as clerk of the works on individual nominated by the architect! and proposed another person, who was elected. Do the Devonport Guardians (and others who have followed the same course) see, that by interfering thus, they relieve the architect from responsibility?—A report from the architect of the new workhouse at Bradford to the guardians last week (asking money for the contractors) contained the curious remark, correlative of what we have just now said, that "the clerk of the works was well pleased with the character of the work!"

**EXPENSE OF THE MANCHESTER WATER WORKS.**—In our recent notice of these works, we purposely avoided giving the benefit of our circulation to a charge made against the borough engineer, Mr. Bateman, by one of the aldermen, of having increased the expense of the works to upwards of a hundred thousand pounds above the estimate, thereby greatly increasing the amount of his commission or percentage on the works beyond the limits of the borough. This charge we took no notice of, as it clearly involved at least one vital error on the face of it. The engineer has since made a statement, which sets the matter right in this respect, and shows that the difference arose mainly from the adoption, by the corporation itself, and not by him, of a scheme for obtaining 30,000,000 gallons of water a day, at a cost of 455,300*l.*, instead of one for obtaining only 15,000,000 gallons, at a cost of 215,000*l.* The motive which chiefly actuated the corporation in doing so seems to have been the prospect which they thus have of profiting by the supply of some neighbouring towns.

**A HUNT FOR THE "BEAUTIES OF ENGLAND" IN THE BRITISH MUSEUM.**—The *Gentleman's Magazine* gives an amusing account of a hunt after the "Beauties of England and Wales," in the British Museum. The writer says, "We began with the 79 vol. Catalogue, under the title 'England and Wales,'—it was not there; then we went to the 153 vol. Catalogue, same title—not there. We tried 'Beauties' in both catalogues; we found 'Beauties of the Opera and Ballet,' but none of England and Wales, and under 'Beauty' there was 'Universal Beauty,' but not the coy shy object of our search. Here we paused to survey the ground, and meditate upon our future course. Knowing a little of the history of the book, we made a dash at 'Britton, John,' the chief editor and principal author, whose name is on the title-page of we know not how many volumes." Every thing friend John had done was found, except what was wanted, "Brayley, E. W.," afforded no better success,

and then the searcher tried after all the contributors whose names he could recollect, but with no good result. Accident, however, led him to A, and "we thank our stars we did so (says he), for there it was and there it is: 'Anglia. The Beauties of England and Wales; topographical, historical, and descriptive; 18 vols. [in 23] 8vo. Lond. 1801-15.' We give the full particulars, to save anybody else such a weary day's work as we had, and hope it will never be our fate to go upon such a search again."

**OFFICE OF WOODS AND WORKS.**—The Queen has been pleased to appoint, by letters patent, Edward Adolphus Seymour, Esq., (commonly called Lord Seymour), Charles Alexander Gore, Esq., and the Right Hon. Thomas Francis Kennedy, to be Commissioners of Woods and Forests, and Land Revenues, &c.—*Tuesday's Gazette*—which also contains the following "memorandum":—"The appointment of Edward Adolphus Seymour, Esq. (commonly called Lord Seymour), as Chief Commissioner of Woods, Forests, and Land Revenues, &c., was omitted to be inserted in the *London Gazette* of the 17th of April, 1849."

**BATHS AND WASH-HOUSES IN ST. MARGARET'S AND ST. JOHN'S, WESTMINSTER.**—The vestry and parochial authorities of the united parishes of St. Margaret and St. John, Westminster, have now in the course of erection, and which is nearly completed, a spacious building, situated in Pye-street, near Peter-street, Westminster, which will be appropriated to baths and wash-houses on a very extensive scale. The area will contain two plunging-baths of between 40 and 50 feet in length, and of a depth varying from 3½ feet at the sides to 5 feet in the centre. There will be above fifty baths for men and women, with accommodation for washing and ironing linen. The cost of the structure, including the purchase of the ground, for which 3,000*l.* was given, will be nearly 14,000*l.*

**SOUNDING BOARDS FOR PULPITS.**—I would suggest to the architects of sacred edifices, that the canopies of pulpits should be formed of strained sheepskin, and inserted into a wooden frame (the skin to be painted to imitate the grain of the wood) and then suspended from the ceiling. By the adoption of this improvement, a great increase of reverberation may be acquired, and the voice of the preacher would be heard distinctly in the remotest part of the church or chapel, without exhausting physical power.—*FREDERICK WEBSTER.\**

**EXTINGUISHING FIRES.**—On Monday last Dr. Robinson, of London, exhibited his apparatus for giving alarm in cases of fire and making the fire the means of extinguishing itself. Strings rendered inflammable by being steeped in spirits of wine were placed in communication with a cylinder containing hydrochloric acid, which, as soon as the string is burned through, discharges itself into a vessel beneath in which carbonate of lime is laid, and thus carbonic acid gas is generated and the flames extinguished.—*Carlisle Journal.*

**ST. JAMES'S CHURCH, HOLLOWAY.**—I perused your remarks on this church with very great pleasure, as I concur most heartily in all you have said of it, but, at the same time, I feel it a duty incumbent on me to vindicate the architectural taste both of my fellow parishioners and myself, which you have called in question. I can assure you, Sir, that the residents of Holloway generally have quite as strong a sense of the ugliness of the building now in course of erection as yourself: they are fully sensible of its unworthiness for the holy purpose to which it is to be dedicated. The most superficial observer cannot fail to be impressed with astonishment, that, in this age of enlightenment, when the arts are so highly cultivated, and church architecture especially studied, a structure of this description should be reared, which must be a lasting disgrace to those concerned in its erection. For myself, I am filled with indignation, when I reflect that such an amount of discredit should be brought on a whole parish by the hole and corner doings of some half-dozen individuals. I hope, Sir, you will not condemn the many for the few. The insertion of these few remarks in your valuable publication will much oblige

A RESIDENT IN THE PARISH.

\* Professor of Oratory to the Royal Academy of Music.

**WIDENING OF CHANCERY-LANE.**—We earnestly trust that the apathy displayed on a late occasion in allowing several of the Middle-row houses in Holborn to be rebuilt will not now re-appear in that immediate vicinity, where the narrow head of Chancery-lane constitutes a serious aggravation to the adjoining Middle-row nuisance: let us, at least, have one of these obstructions amended. The parochial authorities have so far done their duty, but, as a last resource, if nothing else will do, let them empanel a jury under the Metropolitan Improvement Act to assess the proper compensation; and as for the payment of it, there is more than one source of assistance that ought to be available. The Woods and Forests,\* the Society of Lincoln's-Inn, the ground-landlord—Lord Radnor, and the public, ought all to pay their respective shares of the requisite compensation. Now, more than ever, the widening of this omnibus and general thoroughfare is requisite, as the opening of the Great Northern Railway has already increased the traffic considerably, and the projected new Record-office with the new street through the Rolls estate, &c., will still further extend it. Indeed, within a few years, the traffic of this lane has increased tenfold, so that the sooner it is widened into a street the better.

**LONDON WELLS.**—In reply to an inquirer, the deepest well in London is that sunk by Messrs. Coombe and Co., the brewers, which measures 522 feet. The next is at the Excise Office, 500 feet. The well at Meux's brewery is 425 feet deep; that at Messrs. Elliott's, Pimlico, 393 feet. The Trafalgar-square well is 383 feet deep, and the well at Kensington new workhouse 370 feet.

**GIGANTIC CHIMNEY AT BOSTON, U.S.**—The New England Glass Company, at East Cambridge, have lately had erected a chimney 230 feet high, and tapering from 25 to 13 feet diameter. We learn from an American paper that it is octagonal in form, and built of brick on a granite base 36 feet in diameter. There is a chimney within a chimney, closing at the top, forming a central flue of 7 feet diameter. Three horizontal flues, from the furnaces, are carried in beneath to the perpendicular one, though so constructed that additional flues, if necessary, may be added. Thus, through the one cone, all the smoke from the several furnaces will be carried, and a group of smaller ones will therefore be demolished. 800,000 bricks, and 100 cubic yards of granite, were required in the erection.

**IRON WAREHOUSES.**—A range of three large iron warehouses has just been erected by Messrs. Finch and Willey, of the Windsor Foundry, under the superintendence of Mr. Grantham. They are intended for California, and will contain an immense quantity of goods. They are built in the usual manner, with frames, joists, beams, columns, and roof, all of iron; and the plates are galvanized corrugated sheets, fastened together by screw bolts.

**VICTORIAL STATUE AT EDINBURGH.**—The cost of the proposed statue of the Queen at Holyrood has been realised, but objections having been started to the idea of placing it in the centre of the palace quadrangle, it has been determined to place it within an ornamental area in front of the palace, and to that end Mr. Ritchie, the sculptor, has pointed out that the figure will require to be larger, as well as the pedestal, plinth, &c., so that some further funds are to be collected for these purposes, and to form the small enclosure, with shrubs, &c., in which it is to be placed. The area within the quadrangle, it appears, is laid with pipes for a fountain at one time intended to be placed there. The chief objection, however, related to the keeper's power to prevent public access to the piazza.

**ST. MICHAEL'S CHURCH, CHESTER.**—In taking down the altar-piece of this church, behind it was discovered a stone which fixes the period when the edifice was rebuilt. The following is the inscription on the stone:—"The east-end of . this Church . being . rvined . was . Rebuilt . from . the foundation . with the Roofer. Thomas Minshvill . Joseph Basnet . Church Wardens. Anno. 1679."

\* A correspondent of the *Times* gives figures to show, that out of an income of 44,245*l.*, the Woods and Forests expend 36,839*l.* in salaries, &c., the balance being all that can be devoted to public purposes.

† See "Sections of the London Streets," by W. R. Mylne. Wyld, Strand.



**TESTIMONIAL TO DR. JOHN CONOLLY.**—It gives us pleasure to observe that the friends of this gentleman are raising a subscription to present him with a public testimonial, in acknowledgment of his professional merits and private worth. Dr. Conolly has done more to alleviate the sufferings of the unfortunate lunatic in England than any other human being: he has struggled long and zealously to oppose and surmount bad systems with inhuman practices, and to substitute wise measures and gentle treatment, in their place. Constitutionally humane, professionally learned, and naturally generous, he has exerted all his qualifications in behalf of a class of his fellow-creatures whose sufferings have rendered them not only helpless to themselves, but a misery and a burthen to their friends and to society. Let us hope that the public will manifest their sympathy with his benevolent and successful efforts, by such a prompt and liberal subscription as may render the testimonial commensurate to the merits of Dr. Conolly, and to the cause he has espoused.—The testimonial will take the shape of a portrait, and each subscriber will receive an engraved copy of it.

**PATENT LAW IN BRITAIN AND ABROAD.**—The cost of obtaining the right to a patent in this country is immense when compared with the general cost throughout the continents of Europe and America. In France it is 12*l.* and upwards; in Spain 10*l.*, 30*l.*, and 60*l.*; in the Netherlands and Belgium 6*l.* to 30*l.*; in Austria 5*l.* 16*s.* 8*d.*, with 11*s.* 8*d.* a-year additional; and in America, 6*l.* 10*s.*; while, in the United Kingdom of Great Britain and Ireland, it is no less than 300*l.*! In France, the Netherlands, Belgium, &c., the surplus profit on the management of this cost is applied to an invention fund; in our own country of pertinacious and venerable abuses, it goes to "the Home Office, Privy Seal Office, Attorney-General, and various Chancery offices." Elsewhere there is uniformly a special patent law;—with us there is actually no law of patents, properly speaking, at all; patents being granted at pleasure of the Crown, under one of those judge-made laws which are modestly based, not on the sagacity of the judges themselves, so much as on that of other judges, who happened to live when the world was somewhat younger, and less experienced than it now is. Successive precedent in decision, or interpretations, of the famous statute, 21 Jac. 1, c. 3, (A.D. 1624), limiting the power of the Crown in granting monopolies, are all that we possess by way of a patent law. These particulars are gleaned from a "comparative view," of some interest, in the *Journal of Design*.—We may here remark, by the way, that it is doubted whether the Act lately passed for the temporary protection of designs will even do that,—as intending patentees are allowed, under the present state of the law, no to register their inventions for future patent, that all they have to do, in afterwards making out their specifications, is to include such designs, wherever they may happen to relate to the general subject of the patent, vaguely bespoken as a registered invention or improvement.

**TO RENDER BRICK OR STONE IMPERVIOUS TO WET.**—Some time ago Mr. Sylvester described a process at the Institute of Architects adopted by him to render brickwork or stone impervious to wet. The porous brick or stone wall is to be washed with a hot solution of three quarters of a pound of mottled soap in a gallon of water, laid evenly with a large brush. This wash, after twenty-four hours, is to be followed by a second composed of half a pound of alum thoroughly dissolved in four gallons of water. In reply to a correspondent who refers to this, and inquires if it can be acted on successfully, we can only say that a member of the institute reported some time afterwards that he had adopted it and found it answer. This notice may perhaps elicit further information.

**RECLAMATION OF LAND FROM THE SEA.**—For the last twelve months some 300 or 400 men have been daily employed in erecting an embankment from the town of Youghal to the immense wooden bridge crossing the Blackwater. We learn from the *Cork Constitution* that the space now enclosed is in the form of a triangle, having the land on one side, the causeway to the great bridge at the other, and the new embankment in the front. This embankment is 2,303 yards in length.

It is very broad at the base, and about six feet wide on the top, and encloses no less than 250 acres over which the sea rolled last week. On the exposed side of the structure a sea-wall is built of massive stonework. The materials of which the structure is composed were drawn from three quarries, for the most part by donkeys attended by boys. Last week, to the great astonishment of the country around, the gap was closed, and the end of this week will see the entire bottom of the area, from which the water will be let off through a flood-gate. The original estimate for this work was 8,817*l.* 15*s.* There was expended on the 31st December last 9,432*l.* 3*s.* 1*d.*, and the further estimate for its completion was 3,690*l.*

**PEEL STATUE IN BIRMINGHAM.**—A bronze statue of Sir R. Peel, at a cost of 2,000 guineas, is to be erected in Birmingham. Mr. Peter Hollins, the sculptor of the statue of Dr. Jephson at Leamington, has been commissioned to execute it. The subscription now amounts to 1,000*l.*

**SCRIBBLING ON WALLS.**—A correspondent suggests that this abominable practice, which, by the bye, is at least as old as the days of Pompeii, and which now prevails especially in the bye-corners of railway stations, might be obviated by mixing the paint, where used for such places, with rough sand.

**CANAL LOCKS SUPERSEDED.**—With reference to your paragraph so headed, which has been going the round of the papers, permit me to make an observation. The invention is described to be on the Monkland Canal, near Glasgow, and is attributed to Mr. Lesley. Now, Sir, the fact is, a precisely similar mode has been in use in Shropshire these thirty years: there are two on the canals belonging to the Lilleshall Company: one of these, I should say, raises the boats upwards of 100 feet, the other may be a little less. Another of these inclines is in the same neighbourhood, and belongs to the Shropshire Union Railway and Canal Company; it is a double line: two boats may go up at once, or one may go up while another is coming down. The whole of the machinery is of the most perfect kind, and much improved of late years under the superintendence of Mr. Beech, the resident engineer. I should be disposed to consider Telford the inventor of canal inclines, he having been engineer in chief for the Shropshire system of canals.—A SALOPIAN.

**NEW LODGING-HOUSES AT GLASGOW.**—The first general meeting of the Glasgow Association for the establishment of lodging-houses for the working classes was held on Tuesday in last week, the Lord Provost in the chair, when the usual report was read by the secretary, from which it appears that the house for single men, with which the society began their useful exertions, has not only been highly successful so far as regards the main object in view, and also self-supporting, but, by reason of this success, had already induced the directors to open a second, which was getting on as prosperously as the first. Lord Ashley was present, and in his address advised the formation of three classes of lodging-houses simultaneously, namely, one for single females, and another for families, as well as the third for single men. His lordship further said, with reference to sanitary arrangements in streets and dwellings, that he maintained the principle, in which he had been much opposed, that property had its duties as well as its rights, and no man was at liberty to lay out his capital in a way calculated to ruin his fellow-creatures. No man ought to be allowed to lay out his money in erecting houses for the working classes unless they were made suitable for the purpose intended, and conducive to the health and comfort of the occupants. He was therefore anxious to obtain from Parliament powers to regulate these arrangements, and the width of streets, &c. Until they obtained these he had no great hope of their obtaining their object, and securing a healthy, industrious, and moral population. Sheriff Bell proposed the opening of a third house for single females, which was unanimously agreed to.

**WAGES IN THE BUILDING TRADES.**—In a case tried at the County Court, Manchester, it has been found that a workman employed by a joiner and builder at hour work, though engaged nominally by the week, may be discharged without a week's notice, or in the middle of the week.

**CONGREGATIONAL CHAPEL, CALEDONIAN-ROAD.**—On Tuesday last the foundation-stone of a new congregational chapel was laid by Mr. D. W. Wire, in the Caledonian-road, Islington. The design, which, as we are told, is Grecian and of the Ionic order, is by Mr. A. Trimen. Mr. Myers has contracted to erect it for 2,436*l.* The basement is to be arranged into school and class-rooms, in which 600 children may be taught.

**THE DUNDEE ARCH.**—We understand that the arch projected at Dundee in 1844, to commemorate the Queen's visit in that year, is almost completed. It is of solid masonry, with stairs leading to the summit; the style, Norman, with ornaments emblematic of the intention. The structure forms a gateway to the principal docks.

**A CARPET FOR THE '51 EXHIBITION.**—We understand that a plan for the working of a carpet to be exhibited next year, has been suggested to the ladies of England by Mrs. Purcell, of New Burlington-street. A design of considerable elegance has been made by Mr. Gruner, and we trust our fair countrywomen will not be backward in bestowing some of the labour they expend on the furniture of their own drawing-rooms, to produce a specimen of needlework really worthy of their trouble, and creditable to their taste.

**THE PARISH PUMP IN ST. BRIDE'S, FLEET-STREET.**—A committee has reported in favour of a plan considered by Mr. Shaw, architect, for sinking a well near the church, with a tank under one of its vaults, to replace the old parish pump, supplied from a spring which is now deteriorated by a sewer in Bride-lane, for which damage to the parish pump the Sewers Commission are held responsible. Various objections to the new plan were started in the vestry, particularly as to injury to the church, vicinity of grave-yard, sewers, &c., and the report was at length ordered to lie on the table.

**INFRINGEMENT OF A REGISTERED DESIGN.**—The defendant in a case at Guildhall, city, has been fined 30*l.* for each offence committed in the infringement of a design for a ventilating pane registered by a Liverpool inventor. Some modifications of the invention had been adopted by the defendant, who had been previously warned to desist from the infringement. Costs, 10*l.* over and above the fines.

**THE ARCHITECTURAL ASSOCIATION** will hold their opening conversation this, Friday, evening, the 4th inst.

**HOT-AIR APPARATUS.**—Mr. J. Nasmyth, of Lille, France, engineer, has patented, so called, improvements which consist principally in a mode of heating air for warming buildings, apartments, conservatories, &c., also for drying goods, and other processes. The apparatus consists of a number of metallic chambers, or, more properly, channels, surrounded by a furnace, and arranged in such manner as that the products of combustion and heat shall play around them. These chambers are open at bottom to admit a current or currents of air, and at top communicate with pipes, through which the heated air is conveyed and applied as required. This description does not sound very well.

#### TENDERS

For a Baptist Chapel, Hammermith; quantities supplied. Mr. John Thomas, Architect.

Piper	£3,330
Smith and Appleford	3,100
Eird	2,850
Lucas	2,050
Gannon	2,994

For Warehouse in Cannon-street, City, for Messrs. Morgan, Martyr, and George; quantities supplied. Mr. A. B. Blenkins, Architect.

Brass and Son	£4,829
Hayward and Nixon	4,500
Gaimon	4,493
Taylor (accepted)	4,480

For Buildings for Mr. Cottrell, corner of Park-street, Camden-town. Mr. Alfred Newman, Architect.

Lawrence and Son	£2,734
Sanders and Woolcott	2,733
F'Anson	2,555
Pearce	2,303
Baterbury	2,000

For Saint John's National Schools, Portland-town. Messrs. Garland and Christopher, Architects.

Clemence	£2,330
Myers	2,205
Kell	2,173
Holland	2,130
Piper	2,080
Trego	1,992











# The Builder.

No. CCCC1.

SATURDAY, OCTOBER 12, 1850.

**T**HOSE who alarm may be expected to re-assure, when the danger is over. In our paper of the 28th ult. we inserted four-and-twenty lines from a correspondent, directing attention to the fact, that instead of continued iron palisades in front of the new British Museum, as originally intended, a high stone wall was to be erected at each end of the enclosure in Great Russell-street, extending some yards beyond the residences which are unluckily tacked on to the structure. Our contemporaries of the daily press reprinted and commented on the letter; our powerful and ready ally, *The Times*, in particular, brought its broadside to bear on the proposed change; and the result, we are glad now to be able to state, is, that the walls are given up, and that the original plan will be reverted to. We need scarcely say that we heartily congratulate the public and the trustees on the determination of this question. The wall would have been a great eyesore, especially at the Montague-street corner, and would have blocked up the place most unnecessarily and injuriously.

The public, or rather their representatives, should take warning from this occurrence, and insist, with regard to public buildings and works, in which their honour, convenience, and instruction are concerned, and for which they find the money, on knowing exactly what is going to be done before the works are commenced. Had this been done in the case of the Museum itself, that building, stately and noble as it will be when completed, would have been very different in character and arrangement,—much more convenient and spacious, and much less costly, as compared with commodiousness and extent. The public have a right to be informed on such matters. The haughty reserve and mystification of officials is most improper and injurious, and ought not to be permitted: they should be quietly informed, and made to understand it too, that they are the servants of the public, the dispensers of the public money, the guardians of the public honour, and, not merely have no right to pooh-pooh and disregard those who have placed them in that position, but shall not be allowed to do so. The sooner this understanding is arrived at the better for all parties. What the duty and policy of the public, on their side, is, in respect of national works, we told them not long ago.

But we would return to the subject that led to this observation, in order to remove a misconception which prevails. Our correspondent, in the letter referred to, ascribed the proposal to erect the walls to an objection on the part of the gentlemen residing in the wings, to the publicity which an iron railing would give to their dwellings, and the officers of the Museum have, in consequence, been much abused by writers in the daily papers. Now that one or two of the officers of that establishment would treat with very little attention the opinion of the public, as compared with their own comfort, and have a very wrong notion of their position, we are not disposed to deny. An officer who, putting his hands

into his pockets and bridling up, could say, as one did say, to a very respectable foreign architect who, armed with the name of another of the officers of different mould, had found his way into the Gallery of Antiquities one Saturday,—“Sir, we will not allow any one to run about our house on a Saturday,”—will be none the worse for some gentle reminders of his real position, and a hint which may regulate his future bearing. But in the present case, we learn that the officers of the Museum had nothing whatever to do with the proposition; and it is not fair, therefore, that they should bear the blame.

The proposition emanated solely from the architect, Mr. Sidney Smirke, and was prompted partly by desire to get over what he considered a difficulty in the shape of the front ground at the west end (next the houses in Great Russell-street), and to mask what is certainly a very ugly part of the building. He was also regulated by the stipulated position of four pedestals in the line of the enclosure, which are to receive statues. It was simply a question of judgment; and the trustees yielded to views, which both the architect and they have now withdrawn on reconsideration.

The statues to be set up will be of Newton, Shakspeare, Milton, and Bacon: models have already been made for them by Sir Richard Westmacott, who, it seems, whether justly or not, considering how few opportunities the sculptor has in England, is to execute them all. The pedestals are in hand.

A portion of the sculpture for the tympanum of the pediment is now on the premises. This is also by Sir Richard Westmacott, and represents the progress of man from a time when, wild in woods, the native savage ran, up to the highest state of intellectual advancement. The part already there is executed in a broad, bold style, in Portland stone, and promises to be effective in its place. This sculpture, the antefixa, and the intended groups at foot of the central portico, may be expected to give what the edifice at present very much wants externally,—life and movement.

## A WORD ON THE TREATMENT OF THE WINDOW IN ANGLO-CLASSIC DESIGN.\*

The office or function of the window is not a more important one in the pointed style than it is in the classic: it has as strong a claim to consideration and character in the one as in the other, and therefore no good and sufficient reason can be assigned why, while the jambs of the Gothic window enshrine a labyrinth of beauty and intricacy of decoration, the filling up of the classic window should be entirely neglected in the way of design. I say neglected, but it seems worse than neglected: not only have imagination, taste, artistic feeling, had no part in the design, but it is positively marred by the sash in common use. The straight sash bars, dividing it into a series of equal squares, do not improve the appearance of the humblest cottage, but in an architectural composition they are an injury: sash bars appear as decided lines, more harsh and cutting than the design elsewhere exhibits. Around, the lines are the boundaries of superficies, but here they harshly cut up and separate. In short, in most instances a spectator, ignorant of the custom, would be led to conclude that the architect had abandoned this portion of the façade to the joiner, who had filled it up in the cheapest manner he could. In Gothic art the window tracery is one of the most important features: it was made either a part of the system of the wall tracery even of the richest interiors, or it became the prime object, and sometimes the sole object, of decoration, which was concentrated upon it. What, therefore, would be the appearance of the great cathedrals and other buildings, either from within or without, if their windows, with their storied panes,

their stained glass, their perforated heads, were taken out?

This is, indeed, a strange anomaly in our Anglo-classic pile: the resources of decoration have been lavished on the frame, not on the picture. The architect has elsewhere, perhaps, seized every opportunity to exhibit luxuriance of imagination, purity of taste, and refinement of feeling; but within the jambs of the window neither mind nor feeling have entered. Straight parallel lines are oft-times deemed too rude in the slating of a lodge. We must have fancy slating, geometrical graces of form, in our roofs, while the most important feature of the front is slighted.

But the window has to do with more than the exterior decoration: it is seen on both sides: it is a feature of the interior as well as of the exterior,—the link connecting them,—the part from which imagination weaves her web of conjecture regarding the interior. If any sacrifice, therefore, be made to beauty, it should be here; and to the window should be given a tone corresponding to the supposed elegance and refinement within. I know that the spirit and character of the classic architecture must be borne in mind, but design might be introduced into a classic window without doing violence to either. Its appearance from within is as little to be disregarded as its aspect from without. What avails the elaborate floorcloth and ceiling of the drawing-room, the pictorial embellishment of the walls, panelled and gilded decorations, while the window is plainness—nay, ugliness—itsself?

I have above contrasted our common sliding sash with pointed windows only; but not only ecclesiastical architecture, but the domestic Tudor, Elizabethan, and other styles, on this point reprove us. The bays and orielles, mullions and casements, of our old mansions are in harmony with the rest of the design. Compare our present windows with those of Venice, with those of the old Venetian houses of the chief cities of the Ionian Isles, and the palaced streets of Valetta! The lower windows of our ancient street architecture were many of them gems of artistic taste! Many beautiful specimens yet remaining of the old timber buildings, erected centuries ago, show what careful objects of design were the windows: divided by mullions into elegantly proportioned lights, with fanciful heads, they are invariably the most agreeable objects in the design, and might make us blush for our present practice—a practice than which anything more unarchitectural or ungeometrical it would be difficult to imagine. No division could be less artistic than these sashes. There is nothing more barbarous in any Romanesque style, however infantine; and nothing but æsthetic blindness, added to exaggerated notions of their utility, could have procured their toleration.

I admit that they possess some advantages: they may be made completely weather-proof, and do not soon get out of order; but their unsightliness is too great; and no architect of genuine feeling for the beautiful, if left to himself, would, even in a private dwelling, make use of them. With the vertically sliding arrangement I necessarily associate the ordinary division into equal squares; for the unsightly overhanging of the upper sheet, and the exposure of cord and pulleys, render the window unworthy the expense of any geometrical or fanciful division of each sash.

But there is no real difficulty in a reformation on this head. We are not indissolubly wedded to the practice. Excellent substitutes might be devised. French casement sashes in buildings of a domestic character are as tasteful as the others are tasteless: they are eminently harmonious with classic architecture, and are a good receptacle for plate-glass. In general, I know they are not made water-tight in England, and this circumstance is used as a ground of objection to them; but they can be made perfectly impervious to the weather, and have been so made in England as well as in France. I know of no serious objection to this plan. No matter what the size or proportion of the window opening, it can be so divided, both ways, by mullions and transoms, as to have the casements of a proper size, or sufficiently small to open without inconvenience; whereas in sliding windows, if short, the sheets run badly, and get out of order. Besides this,

\* See p. 471, ante.



French casements, when opening, as they should and may do, inwards, are more easily cleaned than the sliding sashes, and possess the additional and well-known advantage of affording egress on to a balcony or lawn.

But there are buildings where arrangements for opening are not called for. Public edifices generally require only a small upper casement for ventilation, and in such there is greater scope for ornamental design in the division into panes,—a scope, indeed, that seems infinite. Nature suggests innumerable ideas and images, forms and combinations of forms, that could be worked up and introduced in perfect harmony with the style. There are geometrical designs in pointed buildings that would be equally applicable to the horizontal or classic. Whereas the cross-barred, wooden grating now in use would be a discordancy in any style. Without wishing to encroach upon Gothic design, I would ask, why should not the classic sash in public buildings,—our halls, galleries, churches, palaces,—have lines in all respects as agreeable to the eye as the cathedral window? Why should it exhibit such a paucity, such a dearth of design, imagination, and taste? Why should not geometry and nature be called in here as well as in Gothic Arabian, &c.? and why not seek our types also among the flowers of the field? How beautiful are some Arabian and Persian windows—the latticed casement of “cool kiosks and bowers!” To the Gothic cathedral, the mid-day sun has “streamed through emeralds and topazes, dazzling the sight, tinting sombre crocket and pier with rainbow hues.” And glass staining and painting, from the simplest bordering to the highest pictorial embellishment and illustration, is as applicable to the classic window as to the Gothic. It must be used, however, in a manner agreeable to the spirit of the day, and made to appeal to and gratify the judgment as well as the imagination. In reply to the various questions just started, the increase of expense could not be consistently urged, for such a consideration is as applicable to the Gothic as to the classic, and to other parts of the latter as to the window. Economy should not operate to the decoration of minor parts, and the neglect of the major ones. But economy has less to do with public than with private buildings, and it is at the former my remarks are chiefly aimed. Liberality is expedient in a public building, which should, at whatever cost, faithfully represent the institution to which it is devoted, and impress by analogy its image on the mind.

Our present mode, among other disadvantages, too much restricts us to certain proportions of window: I mean proportion of length to breadth. In short windows the sashes slide badly, and get out of order. Besides, large windows, as broad as high, or broader, look ungraceful. In the Tudor style the division, by mullions, into lights, more or less in number according to the width, gives more latitude in the general proportion, or renders almost any proportion pleasing; and in this it has a great advantage over the present system. In truth, many hints for improvement in our windows might be taken from Gothic buildings, both ecclesiastical and domestic. Of the grouping of windows they furnish us with excellent examples, from the early lancet window to the many lights of the Tudor style.

Attention to the due ornamentation of the window would render us more independent of columnar decoration in the general design of the edifice. A row of handsome windows, with appropriate dressings, would have a powerful effect of themselves, and give due character to the building, without any non-essential or adopted features; while more irregularity might, when requisite or useful, be admitted into the design: the window, for instance, might be placed with greater eye to convenience, provided we made it in itself an ornamental object. And further, windows would be handsome and effective objects independent of the dressings: at least, a very slight moulding would be all that, in ordinary cases, was absolutely necessary.

It is, perhaps, in the nature of things that picturesque beauty should, in some degree, fade before those scientific discoveries, mechanical inventions, and improvements which add to the accommodation and comfort of life. It does so probably by an operation of the law of compensation: “for every thing you gain you

lose something, and for every thing you have missed you have gained something else;” and such, I consider, has been the case in reference to plate-glass. One square in a window, or a series of large squares, looks chaste and elegant, and is appropriate to some designs; but generally it is not equal, in pictorial qualities, to some older methods, as every artist knows. I do not say that we should not avail ourselves of the discoveries and improvements of science: plate-glass may be, and is, very extensively used amongst us, even in Gothic and Elizabethan architecture; and we should gratefully receive from the hand of science what new material will contribute to the convenience and pleasure of our abodes; but amid the changing requirements of habit and usage, and their supply, we should not lose sight of the eternal principles of beauty. Beauty is also a want of our nature, and a regard for it should in some measure qualify, or at least modify, our use of new inventions. Many artists (by which I mean painters and sculptors) and other votaries of the abstractly beautiful, look, I believe, with a somewhat jealous eye on the present extensive use of plate-glass, and rather regret the disappearance of the old lead lights. And certainly whatever advantages the former possesses, the latter, it cannot be denied, were more picturesque. The architect differs from the painter, in respect of taste, chiefly by his having a greater regard for the useful, which the artist is too apt to lose sight of in judging of architectural works; but the architect should nevertheless have as strong a feeling for the beautiful as any other follower of the goddess, and he should secure the useful with as little sacrifice of beauty as possible.

Let us consider for a moment the respective claims of the old and of the present practice to our notice. Besides the minuteness of division, contributing, by means of contrast, to greatness of effect in the surrounding parts, the filling in of the old diamond panes was like adding an enrichment to the building: like tracery or tabernacle work, and their varied angles of reflection, it secured a play of light and shade, and produced a sparkling in the rays of heaven, a rebeaming of sun and sky, that might rival the surface of the glassy lake itself. I have seen effects on old lead lights in Italian churches, for which the elegance of plate-glass is but an indifferent substitute.

In the present method, on the contrary, the window opening is merely filled in with a rude cross-barred wooden grating, by which it is divided into squares of conspicuous dimensions, and made to exhibit nothing but equal panes of glass and harsh parallel lines. Now, parallel lines are pleasing enough where, by means of the perspective, their distances appear to diminish, and the lines themselves to converge as in rustication, but in windows they are too short for this effect. When their distance is so small that the whole at a proper point of view would look like network or texture, these horizontal and perpendicular lines may also be tolerated; but on a large scale they have a bad effect, and must ever present in themselves a rude and commonplace appearance, inferior to that of almost every other arrangement. But the great objection is, that, in such division of a window, no mind, no artistic feeling, nor design, is manifested,—no law of beauty is recognised,—and the window is consequently cut off from all participation in the general character of the building, and has no relation to other parts of the design.

The practice I believe, however, originated, not so much in a narrow view of architecture, which should combine beauty with usefulness, as from a mistaken idea of beauty, for which, with some, simplicity is a synonyme. Now, simplicity is but an ingredient, and a subordinate one, of beauty. Many are the qualities that go to make up the beautiful: there must be a due subordination of parts,—gradation, contrast, variety,—intricacy, even, is a quality of beauty. Variety is the chief ingredient: simplicity and uniformity are qualities called in to keep it from running into confusion. It is a due balance of these qualities that produces beauty.

I am far from advocating a return to any ancient practice; but, a beauty having gone, I would suggest its loss as a motive for exerting the imagination to conceive a substitute, consonant with and worthy of our new means

and appliances. In doing this, the facilities presented by cast-iron should not be forgotten. I have seen the common sliding sash introduced even in buildings where the display of pure Greek design, rather than any adaptation of ancient elements or expression of modern purpose, was the object of the architect. Now there are some critical eyes so fastidious as to be offended by the association of a window of any kind with pure Greek design. I believe the window to be as proper as the roof, but the character of our sash is well calculated to foster prejudices against the whole.

Something different to the present window, I am convinced, our Anglo-Saxon architecture, in all its adaptations, demands. To me the rich antique dressings in most instances appear thrown away, for they only embellish, to say the least, a void—a nonentity. This is one of the few departments of the art in which we have no ancient example or model, but assuredly our present practice is opposed to those principles of adjustment which guided the ancients in every department of their works, and to the relations which essentially constitute architectural beauty. Had the Romans possessed our means, in the way of glazing materials, for filling up their window apertures, they would have brought a little more feeling and imagination to bear upon it; and something more of the magic beauty of form than we have exhibited would have resulted in their sashes. In fact, I believe the classic window affords the greatest scope for beauty, though it has hitherto had no place in our design. It is a germ of life, and grace, and expression, hitherto dead, and that has yet to be unfolded to the day.

It would seem as if architects generally felt the inconsistency of their treatment of the window; for, in competition drawings, we usually find the sashes are left out, as if they were not deemed likely to improve the design,—very different from the case of the Gothic window, which is considered essential, and is calculated upon and brought into requisition accordingly. In truth, it is only the effect of custom upon the eye that renders them tolerable in any harmonious design. In ordinary dwellings people of taste paint their sashes black, to render them less conspicuous.

Against what I have advanced it may be replied that the window as at present treated is sufficiently expensive; but it is for its due proportion only of decoration that I contend. My object is to show that the window is not treated according to its importance, and to urge its just claim to consideration. In order to distribute decoration justly, we should first consider what are the essential features of our architecture, and what the relative importance of those features, and bestow our attention in proportion to their merits. Windows, doors, chimneys, pitched roofs, and gables are the things we have to decorate,—which we should do before giving unessential decoration, or, in other words, introducing features which are purely for ornament. How often do we see windows mere perforations, while columns and pilasters, and other elements non-essential to the construction, are used as embellishments. A mere aperture, glazed in the rudest manner, will admit the beams of the god of day, but it is a dead feature, a dumb organ, and cannot be looked upon as an object of art.

SAMUEL HUGGINS.

#### THE ARCHITECTURAL ASSOCIATION.

THE room at Lyon's Inn, Strand, was very full at the opening meeting of the Architectural Association on Friday, the 4th inst., and the walls and tables exhibited a fair sprinkling of drawings and prints: the sketches of the class of design did not show so much improvement on those of last year as we should desire.

Mr. J. P. Seddon, one of the secretaries, read the report of the committee, which stated that the association was in a flourishing condition: there are now 150 members. A balance-sheet was not given. As to the Architectural Exhibition, it communicated the gratifying information that it had been visited by 10,000 persons, and that the receipts were nearly sufficient to cover the expenses. It proceeded, “Your Committee, convinced of the importance of an exclusively architectural annual exhibition, have thus, at a considerable expense



to the Association in the first instance, and undeterred by the risk of failure which many prophesied, or the fear of the odium which would attach to such failure, taken upon themselves its establishment. They have again, however, to say that it is not their wish to retain entirely in their own hands that which ought to belong to, and be supported by, the whole profession. So soon, therefore, as they shall see that its condition is such as would justify them in so doing, it is their desire to render it independent, and they hope shortly to be able to invite such of the exhibitors as may have shown the greatest interest therein, to co-operate with the committee of the exhibition."

The chairman, Mr. John D. Wyatt, read an address; after which Mr. W. Young read the report of a committee appointed to consider the subject of competition, which we have given in full.

The chairman then invited various gentlemen successively to address the meeting.

Mr. Godwin expressed his gratification that the exhibition, although opened at a time when London was empty, had been so well attended. He hoped it would be arranged earlier next year, and that three or four of the leading members of the profession would be associated with the committee to endeavour to render it worthy of the country. In the course of his remarks on the competition report, he drew attention to the propositions issued by the "Bristol Society of Architects." With reference to No. 3, which suggests that the successful competitor should be required to find responsible contractors to complete the works for the sum specified in his own estimate, and in default thereof to relinquish all claim to compensation,—he said he thought this was, at all events, a questionable step. He considered, as he had on other occasions said, that an accurate estimate, founded on calculations, ought not to be expected from an architect unless he was paid for making it. If a competitor sent a design which manifestly to the eyes of judgment could not be carried out for the sum stipulated, it ought not to be admitted, but he thought it very doubtful if such a proposition as that he had referred to should be suggested to committees. The speaker referred briefly to the questions now engaging attention, and rejoiced that the report had not left untouched the importance of inculcating a high feeling on the part of the profession. Each should act as if he held in his hands the honour of the whole profession.

Mr. C. Fowler expressed his good wishes for the Association: their establishment of an Architectural Exhibition was most praiseworthy, and he regretted that his engagements had prevented him contributing: it was almost discreditable not to have an exhibition of architectural works. As to the competition matter, he knew something about it, from the part he had taken in framing the report of the Institute, and he feared the difficulties were too formidable to be overcome by the course pursued: still they should not relax in their endeavours. He would echo the remark of the last speaker as to the feelings with which the profession should be pursued: an architect should be a man of taste and a gentleman.

Mr. Hall, in the course of some observations, said, he must claim for the Manchester Architectural Society the merit of having originated the opposition to the proceedings of competition committees. As to the value of competitions, he thought he must object to them altogether, as doing more harm than good. He was glad to find that the exhibition had been visited by many workmen, as we should in our turn benefit by their improvement.

Mr. Billings introduced to the meeting a number of plates, further elucidating the system of geometric design. In the first series he had published, the designs had been constructed on three circles, placed at some distance from each other, and he had found that the nearer they were brought together the less was the variety obtainable. The moment the circles touched, however, the power returned, and the series of traceried panels which he then laid before them were constructed out of circles so placed.

Mr. Inman, Mr. C. H. Smith, and others, also made some observations.

#### MANAGEMENT OF ARCHITECTURAL COMPETITIONS.

REPORT of the committee appointed July 27, 1849, by the Architectural Association, to consider the subject of Architectural Competitions in connection with the published report of the Royal Institute of British Architects, and the practicability of the suggestion that "Architects should meet together and lay down a set of regulations as to on what terms they ought to furnish designs in competition."

IN now, for the first time, producing their report to the Association, your committee feel that it may be required of them to explain why a period of more than twelve months has been allowed to elapse between their appointment and the production of the result of their labours.

They beg to state that the delay has arisen, not from any difficulty which they have experienced in recognising the practicability and utility of the proposal made by Mr. R. Brandon and others for the convening of a public meeting of the members of the architectural profession, but from the extreme difficulty of another task which your committee have imposed on themselves, without accomplishing which their labours would certainly seem incomplete. They allude to that of producing a code of regulations for future architectural competitions which might ensure the approval of even a majority of their own body.

With reference to the report of the Royal Institute of British Architects on Public Competitions for Architectural Designs, it may, after the long delay just explained, be necessary to remind the members of the Association that copies of that document were, some time prior to the appointment of the committee, most obligingly forwarded spontaneously to the committee of the Association by the secretary of the Institute, Mr. Scoles.

Your committee have several times perused, and very maturely considered, this report: they have themselves adopted it as the basis of the code of regulations which, in the absence of a better, they recommend the Association to submit to any public meeting of the profession it may invite, or in any other manner convene, and they strongly urge the Association to adopt that report as the basis of any proceedings it may publicly identify itself with. It will be found on perusal to contain a most lucid exposition of the evils of the system that so loudly calls for regulation at the hands of the profession, the only proper body to reform it. Yet your Committee have one objection to raise to this report of the Institute, even in its character of an exposure of the evils attendant on competitions; and that objection is, that owing to the period that has elapsed since its publication, in 1839, and the indifference with which the subject has been treated by the professional body, new evils have sprung into existence, so that the report, viewed even as a mere catalogue of evils, is, in 1850, incomplete.

Architectural competition, a system, if properly conducted, replete with advantage to art, to architects, and to the public, has degenerated from an ordeal or touchstone, however imperfect, of architectural excellence, into a mere monetary speculation, in which, as matters now go before the public, the incompetent adventurer, with means to afford and mere *novus* to avail himself of the extensive aid of the pressed painter, the carver and gilder, and the lithographer, is far more frequently successful than the erudite or the skilful architect, who fondly trusts he need not avail himself of such extraneous aid to secure the patronage of "a discerning public."

Your committee feel sure that it is quite unnecessary to adduce cases which substantially confirm the truth of this observation.

The result of the present state of the system may be seen almost daily in the lowered condition of our art, and the comparatively low estimation in which as a profession it is held, especially by those of their fellow citizens whose respectful consideration is to be desiderated,—the painter, the sculptor, the scientific, and the man of letters.

The committee have duly discussed amongst themselves the course to be adopted in the convening of a public meeting of architects in London, with a view to their adoption of some tangible code of regulations, in compliance with which they may consider all competitions ought to be conducted.

They do not trouble you now with the details of the programme of such meeting, but these details will be found to have been carefully considered. It may be thought sufficient, for the present, to advert to the general mode of procedure recommended, which is as follows:—

They propose that the Association shall, as early in the course of the present session as practicable, solicit some leading member of the profession to undertake the office of chairman, and (on the intimation of the co-operation of a few architects unconnected with the Association to support him), convene by public advertisement a meeting of architects, which may serve as a preliminary meeting for

the adoption, *pro tem.*, of the code of regulations of your committee, or of any other the assembly may consider preferable to it. Such code to be thereupon printed and circulated for the consideration of all architects and architectural societies in Great Britain and Ireland, by a committee of gentlemen to be nominated at the meeting, who shall thenceforward take the matter out of the hands of the Architectural Association, select their own officers, raise subscriptions to defray the trifling expense of corresponding with the profession throughout the kingdom, and eliciting from the members of it their advice and opinion of the regulations submitted to them as beforementioned, preparatory to the convening of a *second general meeting* of architects in London, for the purpose of revising the said code of regulations, submitting it for approval to the Royal Institute of British Architects, and adopting it as binding in professional etiquette upon all architects; particularly members of the Institute, the Architectural Association, and such provincial architectural societies as may, by their accredited officers, identify themselves with it.

Your committee do not suggest that any code of regulations drawn up by architects shall supersede, but rather that it should be superadded as a pendant to, the usual instructions to architects, which, wherever they do not contravene the regulations, and so become *ipso facto* nugatory, should be held to be binding on competitors and committee alike.

As respects the code of regulations, which, in the utter non-existence of such a document, your committee venture to recommend as a nucleus for the consideration of the contemplated first public meeting of Architects, it is the result of mature deliberation on their part, and of the advice of others experienced in the question of competitions. They have drawn it up with some assurance that, although it may not be found to meet in every particular the ideas of each member of the profession, or even of the Association itself, it is essentially calculated to obviate the generally acknowledged evils of the present objectionable system, and in the main to secure the suffrages of the professional body, as the most useful form for regulating competitions that has yet been devised.

Yet, as it did not originally form part of the duties assigned them, your committee do not, by now reading it, seek to commit the Association to the document in question.

In conclusion, your committee earnestly hope the Association will not be discouraged by the seeming boldness of the step herein advocated. Great interest is now being felt on all sides on this and other questions affecting the well-being of the profession; and it is surely not too much to hope that the Architects of this country, once organised, with a well-digested code of regulations brought prominently before them, will at last bestir themselves, and effectually, to put an end to the present anomalous system. Nor let the Association be dispirited if, haply, they should succeed only in enlisting the active sympathies of the junior members of the profession in this cause; for it must be borne in mind that it is, in itself, these only that the system of competition materially affects; and if by the labours of the Association the young Architects of the kingdom, whose ideas of professional respectability are under the present system tempted to sad confusion, can be brought to enunciate a collective opinion on the right management of competitions, a great good will have been effected, and sooner or later the object we now strive for will be gained, it matters little by whose immediate agency.

Your committee are strongly of opinion it will be sufficient for the Architectural Association to simply agitate the question, and pioneer the way for its being brought to a definite issue, without being themselves over anxious to identify their name with any measure the profession may ultimately adopt.

Allusion has already been made to the Royal Institute of British Architects, to whom it is highly desirable, not to say decorous, to refer in this matter.

Their report, to which your committee's attention has been so long given, states that the attainment of an amelioration of the system "*reads with the profession at large*," and, therefore, there is every reason to think that should they be consulted, they will cheerfully set their seal (so to speak) on any sound measure for amending the system which any numerous body of architects may be found to agree upon.

Should you be disposed to question whether or not the public will be likely to favourably recognise, and fall in with, any measure so sanctioned by the profession, your committee feel that they cannot close their labours better than by expressing their conviction that, in the words of the Institute's report, "in a very great majority of cases of competition the committees, or parties to whom judgment is confided, are quite ready to acknowledge themselves deficient in the means of fulfilling their duty, when once the nature of that duty is candidly and temperately explained to them; and that any suggestions to the effect above stated will be favour-



ably received, when offered in proper terms and at a proper season."

**Code of Regulations\* for Public Architectural Competitions,** suggested for the consideration of all Architects in Great Britain.

**Designs.**—Competitors to be at liberty to submit one or more designs, as they may think fit; but each design to comprehend no more than the following drawings: all further drawings, or drawings otherwise executed, and all models,† engravings, written or printed particulars, specifications, letters, address cards, circulars, testimonials, tenders, or other papers, to be at once set aside, so as not to be laid before the adjudicators, nor are the committee to hold themselves responsible for their safe return to their respective owners.

**Drawings.**—Plans of each story, tinted at discretion.

No. —. Elevations, in outline only; save that metal work, roof, and apertures may have a light monochrome, if desired by the author.

No. —. Sections, tinted at discretion; the non-"sectional" parts executed as elevations, above described. (Drawn to a scale of feet to an inch.)

No. —. External perspective views, in outlines only.

No. —. Internal perspective views, in outline only.

The size of each view may be less, but is not to be greater than inches by inches, inclusive of a single line margin, or a "mount" of plain tinted paper or board, should the competitor desire one.

All drawings are to be executed on separate sheets of white paper or card-board, transmitted flat, attached or not, at discretion, to strainers or other "backings," but without varnishing, glazed or other frames, coloured, embossed, or other ornamental borders, margins, or mountings whatever, save the views as before mentioned.

**Mode of transmission, &c.**—Each design, distinguished only by a device and motto, marked on the right hand lower corner of each respective drawing, and accompanied by a brief description of the proposed building, its general mode of construction, and probable cost (similarly marked), is to be forwarded, carriage free, to , on or before day, the .

On the adjudication, the names of the devices and the mottoes of the selected designs to be communicated by letter to each of the competitors; and, on their identification, the rejected designs (save such as may have been disqualified by non-compliance with these Regulations) to be returned, carriage free, to their respective authors.

**Cost of building.**—The cost of the building not to exceed the sum of , inclusive of the architect's commission and expenses, and salary of clerk of works.

**Adjudication.**—As respects matters of taste or convenience, the committee not necessarily to pledge themselves to be actually governed out of their own body; but in all matters relating to the efficient construction of any designs they may approve of, or the accuracy of the author's estimates accompanying them, they are to be guided by the opinion of some one or three non-competing architects or other professional judges,† to be recommended to them by the general voice of the competitors. Each competitor is therefore, on delivering his design or designs (and only then), to submit the names and addresses of any one or more professional men, not exceeding

\* These Regulations are not meant to supersede, but rather to be super-added to, the usual "Instructions to Architects," which (wherever they do not contravene the Regulations, and so become nugatory) should be held as binding on competitors and committee alike. Such instructions should be (particularly in matters of required arrangement of the intended building) as full and as explicit as possible. Some very excellent observations on the importance of committees issuing well-considered instructions to architects are given in a brief Report on Competitions by the Royal Institute of British Architects.—Wesley, Holborn, 1839.

† In some cases models might be advantageously specified, but if so, they should be of uniform scale and character, be required of every competitor, and be placed on a uniform level with the eye of the spectator.

Here specify as few, and as small drawings, as may be consistent with the intelligible representation of each design. Thus the labour of selection will be greatly lessened, and committees may save themselves much annoyance and expense, attendant on the transmission of unwieldy packages, and even the hire of vast suites of rooms, necessary for the storage and inspection of large drawings.

§ As natural representations of an object, mere outline views are necessarily imperfect; but although shadows and tints are very desirable, chief equality in the scenic representation of each competitor's design is absolutely indispensable; nor can this desideratum be so well attained by the adoption of any other medium as by that of mere outline.

¶ Here, if it be intended to limit the cost to any amount already determined, be careful to state the utmost sum that is now, or is at all likely to be, placed at the committee's disposal. It will be found in practice far easier to lessen the cost of the building after the competition, than to avoid the imputation of unfairness usually attached to any material subsequent extension of it. The sole of carrying out an eligible design, for which funds have, in the first instance, been barely provided.

\* "It is not here intended to restrict the term 'professional' to architects; but to apply it to the members of all professions whose advice may be made available to the arrangement of buildings of various classes."—Report R. I. B. A.

three, to whose judgment or experience he himself is willing to refer the committee for guidance in this matter.

**Premiums, &c.**—The architect whose design is selected, to be employed as architect of the building, provided his character be such as to render him unexceptionable. If not employed, he is to be paid a premium of 1 per cent. on the amount of his estimate, which sum (in event only of such adopted design being carried out) is to be deducted from the commission of the architect employed in his stead.

A premium of \* to be paid to the author of the second, and of to the author of the third best design; the design selected for execution alone remaining the property of the committee.

**Exhibition of designs.**—The committee to reserve to themselves the right to publicly exhibit or not, as they may think fit, the whole of the designs; but in such case to pledge themselves that the exhibition shall precede the adjudication. The cost of such exhibition to be borne by the committee; the proceeds, if any, after defraying expenses, to be applied to the building fund.

#### CHARACTERISTICS OF STYLE IN ORNAMENT.

ON Friday evening in last week, Mr. R. N. Wornum lectured at the Government School of Design, Somerset House, on the technical characteristics of style in ornament: first, of the Egyptian, Greek, and Roman, as illustrative of ancient ornament; and, next, of the Byzantine, Saracenic, and Gothic, as illustrative of that of the Middle Ages.

The earliest style of ornament we know anything about, preceded the lecturer, is the Egyptian, and this is literally a hieroglyphic style of priestly symbolism, both in sentiment and detail. As a rule, the elements of this style have a particular meaning, and are not arbitrarily chosen for the sake of beauty of effect. It is therefore very simple and limited, in comparison with later styles, in which mere symbolism was superseded by the purer principles of art. Yet we cannot but admire the ingenuity with which the Egyptian artist, by a mere symmetrical arrangement, has converted even the incomprehensible hieroglyphics into pleasing and tasteful ornaments. A mere symmetrical arrangement, however, is the limit of his artistic scheming, and generally in the shape of a simple progression, whether in a horizontal line, or repeated on the principle of the diaper, that is, row upon row, horizontally or diagonally.

When we consider the hierarchical vassalage of the Egyptian artist, and that he was by birth and not by choice in his profession, we must admit that he displays peculiar ability. In many respects the art was as thoroughly understood at Memphis or Thebes, 3,000 years ago, as it is at London or Paris this day: the shapes of the Egyptian ewer, bason, and other domestic vessels, are identical with those of the most favourite patterns of the present time; and many of their ornaments are still popular ornaments, and have been so through all times,—as the fret or labyrinth, wave-scroll, spiral, zigzag, water-lily, star, and palm, besides many others derived from the natural productions of Egypt. The student, therefore, who may wish to produce an Egyptian design is not so limited as he might imagine: he is more limited in the disposition than in the materials. Very few, however, of these elements are sufficient to stamp a design with an Egyptian character.

In the first place, Egyptian ornament admits of no pictures of objects: all are treated conventionally: even in the wall-paintings themselves no object is fairly painted as it actually appears: the best examples are but intelligible representations—mere diagrams or elevations.

The arrangements are almost exclusively a mere symmetrical progression, and always of a very simple order; though precious stones and metals, and the richest materials generally, seem to have been very abundantly used. The frieze is the commonest form of these decorations, and the details are generally some of the more important symbols, as the lotus, or water-lily of the Nile, the type of its inundations, from which Egypt derives its fruitfulness, and the zigzag, the type of water, or the Nile itself:

\* From a calculation made, it would appear that the average price of competition committees in England during the last ten years has been to award for their first premium sums equivalent to 1 per cent. on estimate under 10,000; of 3 per cent. under 100,000; and in large competitions, where six or more premiums should be given, of 4 per cent. under 500,000.

this ancient signification of the zigzag is still preserved in the zodiacal sign of the water-carrier, or Aquarius.\*

There is, however, one particular ornament which is more common than all others in Egyptian decoration: this is the winged scarabeus or beetle, or winged globe. It is a species of talisman, or invocation of good luck. The globe is supposed to represent the sun, the wings providence, and the two asps, one on each side of the globe, dominion.

We almost invariably find this ornament placed over doors, windows, and passages, and it is sometimes of an enormous size, extending to 30 feet or more. The swelling asp alone (the *cobra de capello*) is a very characteristic ornament: we find entire friezes and borders composed of a mere succession of these asps, and it is very common to find them arranged also in symmetrical opposition, one on each side of the cartouche enclosing the hieroglyphic name of a king, having the same reference to dominion.

The essential symbolic characteristics of an Egyptian design, then, are these five,—the winged globe, the lotus, the zigzag, the asp, and the cartouche containing hieroglyphics. These you may mix up with any arbitrary or geometrical forms, as the fret, spiral, star, and any of the natural productions of Egypt, conventionally treated, and a simple symmetrical progression, every detail almost having a symbolic meaning beyond its mere ornamental service in the design. Gaudy diapers and general gaiety of colours are likewise characteristic of this style, but the colours had better, perhaps, be limited to red, blue, yellow, and green to preserve a strictly historical or Egyptian effect.

The Egyptian style of decoration was not without its influence on all people connected with Egypt,—on the Jews, the Greeks, and more especially the Persians after the plunder of Thebes by Cambyzes, who carried a colony of Egyptian artists into Persia; and we still see the remains of their influence in the whole valley of the Euphrates, from Nineveh to Persepolis. The so-called Nineveh sculptures recently deposited in the British Museum are identical in style with those of Persepolis, the work of this Egyptian colony introduced by Cambyzes at the close of the sixth century before our era. The bull figures chiefly in these sculptures as he does in Persian mythology. It is hazardous to venture an opinion upon the period of works such as those from Assyria, which, to all appearance, have their history inscribed on them; because these inscriptions, when interpreted, may prove a very authentic contradiction to the opinion ventured; but according to our tests of characteristics of style, the sculptures lately brought from the site or vicinity of the ancient Nineveh are certainly of the same school as those of Persepolis, and of the same time: they are Egyptian, and very few years, if any at all, older than the Elgin marbles.

The most characteristic elements of the second great historic style,—the Greek,—continued the lecturer, in recapitulation of preliminary remarks on the Doric or early, and the Alexandrian or later, Greek styles, are the wave-scroll, the fret, the horse-chestnut, the astragal, the volute, the anthemion, and the guilloche. The ordinary scroll and acanthus must be kept subdued in comparison with the anthemion; for in the sense in which we use the term, they are much more characteristic of Roman than of Greek art. It is the same with the three great classic orders—the Doric or Echinus order, the Ionic or voluted

\* This illustration of the meaning of an ancient symbol will not, I think, be new to most of our readers. "Pompeii" we lately stumbled on a striking illustration of the truth of an idea we had previously entertained in regard to another symbol, which, though it has less to do with architectural ornament, is of general archaeological interest, and may afford a suggestive hint in connection with that of A. horns and the zigzag towards the calculation of other symbols. Like that of the sign Aquarius, the symbol alluded to is also astronomical, being that of the planet Mercury, in fact, still in use, and somewhat resembling a crescent moon placed above a circle with a cross beneath it. The peculiar style of a sculptured figure of Mercury's caduceus, engraved in Gell's work together with the form of the gy, and in which the two serpentine forms were made to issue from the point of the rod, and twine with each other above it altogether, in form of a circle surrounded by a crescent, the rings appearing below, as if by branching from the middle of the rod, clearly indicated the correctness of a previous idea that the apparently arbitrary and unintelligible symbol of the planet Mercury used by astronomers, is nothing else than a diagram or skeleton of Mercury's winged rod with its serpents!



order, and the Corinthian or Acanthus order—all three Greek by origin; but the Acanthus order was very little used by the Greeks, while with the Romans it was the favourite.

We come now to the third and last ancient style—the Roman; but we need not dwell upon this, because it did not add a single element to the Greek, although it elaborated these elements with every possible variety of effect, and with all the exuberance and richness of which they are capable. Its chief characteristic is its uniform magnificence. Even the architectural orders have not escaped this enrichment. The free introduction of monsters and animals is another characteristic of Roman as well as of Greek ornament, as the sphinx, the triton, the griffin, and others; they occur, however, most abundantly in the Roman.

The Middle-Age styles we may term the Christian, in contradistinction to the ancient as the Heathen. During the first and second centuries, Christian works of art were limited to symbols, and were then never applied to decorations, but as exhortations to faith and piety, and all Christian decoration rests on this foundation, till the return to the Heathen principle of beauty in the period of the Renaissance. The only symbols were the monogram of Christ, the lily, the cross, the serpent, the aureole, or vesica piscis, and the circle or nimbus, the glory of the head, as the vesica is of the entire body. These are very important elements in Christian decoration, especially the nimbus, which is the element of the trefoil and quatrefoil, so common in Byzantine and Gothic art. These matters, continued the lecturer, I explained in detail in my lecture on this subject, and can now little more than refer to them. After a systematic exclusion of the symbolic modifications of ancient Paganism for about 400 or 500 years, they were gradually adopted, and became eventually a very prominent feature in Byzantine decoration, and a most comprehensive style of decoration was rapidly developed, although they never attained that purity of detail which characterizes the works of the Greeks.

The Byzantine, the Lombard, and the Norman, are the chief varieties of the Romanesque, but the two latter may technically be considered as mere modifications or varieties of the former.

The principles of the Saracenic style are soon stated. The Byzantine artists were pressed into the service of the Arabian caliphs and generals, and ordered to raise rich mosques and palaces; and Damascus, Cairo, and Cordova show the admirable ingenuity with which they accommodated themselves to their new circumstances. Vegetable forms were now excluded, as there was to be no image of a living thing; but the Byzantine Greeks were sufficiently skilful to make light of such exclusions. Mere curves and angles, or interlacings, were now to bear the chief burden of a design, but distinguished by variety of colour. The curves, however, very naturally fell into the standard forms and floral shapes, and the lines and angles were soon developed into a very characteristic species of tracery or interlaced strap-work, very agreeably diversified by the ornamental introduction of inscriptions. This style, as applied to textile fabrics, such as damask, has lately reached our railway carriages. You may see now worsted borders, in which the initials of the company are worked as an ornamental pattern right and left and upside down, as in an Eastern example pointed out. The Siculo Norman, from which our Norman is derived, is as much a variety of the Saracenic as of the Byzantine. It is displayed in great magnificence in the Cathedral of Messina.

The lecturer then proceeded to the last great middle-age style, the Gothic; but of this we have little space remaining to enlarge on. The most striking feature of all Gothic work, he remarked, is the wonderful elaboration of its geometric tracery,—vesicas, trefoils, quatrefoils, cinquefoils, and an infinity of geometric varieties besides. The tracery is so paramount a characteristic that the three English varieties, the Early English (?), the Decorated, and the Perpendicular, are distinguished almost exclusively by this feature: it is the same with the French Flamboyant,—the flame style, from the waving lines of its tracery. The Decorated, though

chiefly characterised by a more magnificent development of the leading elements of the Early English, more especially the tracery, has its own features,—the ogee work, and the pinnaced canopied recesses producing a prominence of diagonal lines. The Perpendicular has the horizontal line, the panellings, and the substitution of perpendicular for flowing tracery as its more characteristic features. The Tudor is scarcely Gothic, as the art in it returns to what it was in the Romanesque, and again becomes horizontal.

It thus appears, said the lecturer in his concluding remarks, that all styles, however individual in character, are intimately connected with those which preceded them, and that an advantage once gained was not allowed to be lost.

#### ASSESSMENT OF BIRMINGHAM.

WHEN we last reported the progress of the Birmingham guardians in their pursuit of a surveyor to assess that important parish (p. 466, *ante*), the question laid between Messrs. Leversidge and Corfield, Mr. Newey, at 1,445*l.*, and Mr. J. D. Paine at 945*l.*, and we mentioned that the committee came to the determination of recommending the last for election. A meeting of the board of guardians was held last week to confirm that decision, or take such other proceeding upon it as might be determined on. Mr. Newey, it seems, is the parish surveyor, and the business was initiated on this occasion by reading a letter from him, containing the somewhat mystical announcement, that—"it had been stated in the public papers that his tender was 500*l.* above Mr. J. D. Paine's, and true it was so; but in the event of his obtaining the appointment, of course, his tender would be reduced to 1,220*l.*, as he would receive by way of salary 225*l.* during the period he had offered to complete the work in; which together make up the gross amount of his estimate 1,445*l.*" After a long discussion it was resolved, by 32 to 3, that a ballot be taken on the three candidates, which being done, the issue was: for Mr. Newey, 29, and for Mr. J. D. Paine, 15. No votes were given for Messrs. Leversidge and Corfield. Mr. Newey was then formally declared elected, with the stipulation that during the performance of his contract (eighteen months), his salary as assistant overseer for surveys should be discontinued. The amount of security required was fixed at 700*l.*

One of the guardians said, that from a calculation he had made, he found that Mr. Paine would require in order to get done in the time he named, to measure, survey, and value 127 assessments every day, not allowing for weather, casualties, or health. He maintained that no man could do the work personally or satisfactorily in that time.

#### PROPOSED WINTER EXHIBITION OF ART.

SEVERAL friends of art and artists, without any personal motive so far as we can learn, have organized a winter exhibition of drawings and oil sketches by our best artists, under novel arrangements. All the drawings (about 300 in number) are to be of one of two fixed sizes, and will be mounted and framed, all alike, by the projectors. Means of effecting sales of works *bona fide* the property of the artist will be provided without charge. The gallery of the old Water Colour Society, Pall-mall East, has been fitted up for the purpose, and will be opened in a few days. The result promises to be as interesting as the motive is praiseworthy.

DECORATORS AND DESIGNERS IN THE '51 EXHIBITION.—100 spaces for ceilings, 24 feet square, will occur in the new building, and will be put at the service, on application, of workers in plaster, wood, paper, and colour for decoration. It may not be generally known that there are already applications for more space than the building will afford: those, therefore, who really desire to exhibit should at once send in notice to the commissioners of their district. Architects should exhibit models of their works. Designs for new modes of construction, ornamental iron-work, &c. are admissible.

#### THIRKLEBY CHURCH, YORKSHIRE.

THE church of All Saints, Thirkleby, was first erected about the twelfth century, if we may form any opinion from the few fragments of that date discovered whilst pulling down the recent building and excavating for the foundations of the new church. Other fragments of the various successive styles of architecture, also discovered at that time, show that this building underwent the usual changes incident to the fuller development of the mediæval art, until, we may presume, the fabric was so shattered by the caprices of the various renovators, that it was again deemed necessary to entirely rebuild it: this was done about the year 1722 by Sir Thomas Frankland, Bart. At this change every vestige of the former building appears to have vanished, and, except the fragments before alluded to, nothing remained to show what it was, or what extent of ground it occupied. In taking down the roof and ceiling of Sir Thomas's church many of the main beams appeared to have originally belonged to a building of the time of Henry VIII., probably one of the numerous alterations of the original building, and were used in the more recent work: these beams were moulded and evidently formed parts of a flat panellied ceiling.

The church erected by Sir Thomas Frankland was in the Italian style of that period; a large oblong room lighted at the east end by a Venetian window, the centre part of which was circular-headed, and on each side by two square-headed windows; the ceiling was plastered, and the beams and purlins formed large clumsy panels; the walls and ceiling were white-washed; the best parts of the work were the oak panellied open seats.

Externally the quoins were rusticated: there was a projecting porch, upon the cornice of which stood two chubby children with inverted torches, and two urns with festoons of flowers. The roof was terminated at each end by a pediment,—over the west was a wooden turret inclosing a small cracked bell.

At the east-end of this building was the family vault, and that of the incumbent was on the south side: these were the only vaults in the church, and the greatest care has been taken that they should not in any way be disturbed by any portions of the new building.

Although the re-erection of this church had been long contemplated, it remained for the present proprietor of Thirkleby-park to carry out the plan. The sudden bereavement which this lady sustained induced the re-erection of the parish church, as an appropriate and noble tribute to the memory of the late Sir Robert Frankland Russell. In fulfilling this object many considerations were necessary; the family vaults should not be disturbed; the accommodation for the parishioners should be ample, but not crowded; and all the accessories should be such as would be consistent with the object required; at the same time the character and expression should depend more upon a suitable and harmonious application of form, than an elaborate display of ornamental detail.

During the erection of the church, convenient accommodation was obtained for carrying on the service, in the riding-house attached to the mansion; all the internal fittings were removed from the church to this place, and the archbishop's license obtained to perform the service there until the new building is completed.

The church erected in 1722 was a parallel-gram about 50 feet long and 26 feet wide, but being without a chancel, it was necessary to extend the new building 24 feet westward, and otherwise to enlarge the area by the addition of the north aisle and tower. The new chancel, nave, and south aisles were erected on the old foundation walls so far as these walls extended, from the level of the ground: these were found to be very sound and thick, and only required additional widths for the buttresses, and new foundations for the nave piers. The whole of the new foundations were carried down to the bottom of the old foundations, and very carefully bonded to the old work.

The new church consists of a nave 48 feet 6 inches long, 17 feet 8 inches wide; north aisle, 42 feet long, 7 feet 6 inches wide; south aisle, 48 feet 6 inches long, and 7 feet 8 inches wide; chancel, 25 feet long, 15 feet wide;



## ALL SAINTS' CHURCH, THIRKLEBY, YORKSHIRE.

MR. E. B. LAMB, ARCHITECT.



north aisle, to be used partly as a robing-room; and priest's entrance, 13 feet 6 inches long, and 9 feet 3 inches wide: south aisle, divided into the Frankland aisle, 13 feet 6 inches long, and 9 feet 3 inches wide, and an octagonal monumental chapel or chantry at the east end, 9 feet 6 inches in diameter. On the east side of this chantry is placed a canopied monument divided into six panels, to be filled with brass tablets: over this monument is a traceried equilateral window; the north side is wholly filled with another traceried pointed window of two lights; opposite to these windows are the arched entrances to the chantry, the other four sides have coupled panels, with trefoil heads, and are to be filled with brass tablets of the ancestors of the Frankland family; these will be in place of the marble tablets removed from the old walls, which from their form and character could not, with propriety, be placed on the walls of the new building. It should be mentioned, that the lowest portion of the plan

of the chantry is square, and the octagonal form is given to it by arched corbels in the angles; these on the first stage are not equal in size, but the regular octagonal form is again produced by corbel arches, from which spring the stone-groined roof. Heraldry and stained glass will form portions of the decoration of this part of the church. The Frankland and north aisles are each separated from the chancel by two arches, the central pier being octagonal, with moulded cap and base, some carved corbels terminating the sides of the arches. The nave has on each side three large arches upon octagonal piers, and small arches at the east end, under which are the entrances to the pulpit and reading-desk. At the west end of the south aisle there is also a segmental abutting arch. In the lower portion of the tower is placed the font, and in the next story will be placed the monumental tablets formerly on the old walls, and it will be easily approached by the stair-turret shown in the sketch. The

whole of the seats will be open, rather low, and with plain ends and moulded back-rails. The roofs are of oak, arched and hammer-beam trussed, open, and, under the hammer-beam, curved ribs, supported by corbel columns.

Externally, the north and west fronts of the building require no further explanation than the sketch. The east and south fronts present unusual forms, from the additional height and importance given to the Frankland aisle and chantry.

The style of the architecture partakes of the character in use at the time of Edw. III., but is *freely* applied, so as to combine with the general form which the requirements of the building produced.

The whole height of the tower and spire is about 92 feet; to the top of the vane, about 100 feet; to the point of the west gable, about 50 feet. The position of the tower, detached from the highest part of the church, materially assists in giving it a much greater



## CAST IRON WORK FROM PARIS.



apparent height and consequence than it has.

The walls are externally built with rough grey lime-stone; all the quoins, with the squared stones from the former building: internally the walls are lined with brick; the dressings, moulding copings, &c. are built with Renton sand-stone; the tracery, mullions, interior of the chantry, and other delicate portions of the work, are of Hartlepool magnesian lime-stone. All the timber is from the estate. The roofs are covered with Peake's terr-metallic tiles. Mr. E. B. Lamb was the architect. The church will be consecrated in the course of a few weeks.

## CAST-IRON WORK FROM PARIS.

No visitor to the French metropolis can have failed to remark the predominance of the use of iron in the exterior enrichments of Parisian houses; and it would appear that this custom, dating back at least to the time of Louis XIII., has been continued without interruption to the present day. The accompanying illustrations represent a series of iron inverted trusses, placed instead of spur stones on each side of the *portes cochères* (carriage-gateways), which are indispensable in the domestic architecture of the Continent. Their use is to give a decorative finish to the pilasters on each side of the entrance, and to prevent the wheels of carriages from encroaching on the small space allotted to footpaths. They occur in great varieties of design, but in most instances they are of recent date. We have selected for engraving those which appeared to us most elegant and most practically useful as suggestions. In some instances the adoption in our own country of these useful and ornamental appendages to gateways, might be attended with success.

DOVER NEW HARBOUR.—We are sorry to hear that the force of a recent storm has damaged the works here to an extent that is estimated at 15,000*l*.

## NOTES IN THE PROVINCES.

STOW CHURCH is now under repair. The old basement stones of the chancel are being re-chiselled and replaced. A contemporary, who seems to prefer renovation to restoration, says, "How can they be expected to be as substantial as the new basements of the transepts with which they have to vie? It is absurd in the extreme to employ stones which have been in wear perhaps upwards of 500 years; and, for the workmen's sake, it ought to be immediately discontinued." A supposed confessional has been discovered in the chancel, and out of one of the ashlar buttresses part of a stone coffin, forming one of the quoins, has been taken: it is said to be of Ancaster stone.—The foundation-stone of the New Corn Exchange at Thrapston was laid on Saturday week. The building will measure about 50 feet by 35 feet, and will be roofed with glass. Mr. George Eaton, of Titchmarsh, has taken the contract.—The Pavilion at Brighton is now being repaired and redecorated by contract with Mr. Vick, contractor. The committee have power to expend 4,500*l*. on the work.—St. Paul's Church, Sketty, near Swansea, was consecrated on Friday week. The new church consists of chancel, south chapel to chancel, south aisle to nave, south porch, and western tower. The style is Middle-Pointed. The east window has three lights; the two to the north of the chancel, two. The nave has, on the north side, one window of three, and two of two lights. A painted window over the altar is said to be the gift of Mrs. Jones Lloyd. The wood-work of the interior, seats, pulpits, &c. is polished oak.—Liverpool and Glasgow are simultaneously engaged in discussing projects for the erection of new post-offices, and the removal of old powder-magazines; rather a curious coincidence, which we may parallel by another "curious coincidence" relevant to our "notes," and relative to the usual material contained in powder-magazines on the one hand, and the equally usual material contained in post-offices on the other. In a recent "note,"

we happened to speak of using the waste power of the soldiery in promoting public works; the "curious coincidence" alluded to is simply the fact that one contemporary, in quoting this note, calls it the waste powder of the soldiery, and another actually says we recommend that "the waste paper of the soldiery" should be used "in promoting public works!" We have not a few absurdities and mistakes to answer for occasionally besides our own, if we ever have any.—The works connected with the construction of the new market at Sheffield, on the site of the Pontine hotel, are progressing with activity. Many of the arches of the cellars which are to occupy the whole extent of the sub-story, are nearly completed, and in a variety of places the brickwork appears above the ground. The entire structure is to be completed by 25th March. The area enclosed will be occupied by a covered hall, 283 feet long, 75 feet wide, and 40 feet high, an iron roof covering the whole in one span. The building will be of brick, with stone facings, simple, but massive. The sides and one end are to be occupied with shops. The contractor is Mr. Carlisle, the builder of the Beighton viaduct, and other railway works in this locality.—The visiting justices of Preston, Lancashire, understanding the roof over their court-house was in an unsound condition, Mr. George Latham, of that town, architect, was appointed to report on the same, with proposals for restoration. The roof was a simple queen roof, supporting a heavy circular dome, and the ends of tie-beams were much decayed with dry-rot. The visiting justices determined on having a new roof, for the purpose of improving the light and sound. Designs were sought by private competition, and Mr. Latham's plan was selected. It consists of an oblong lantern of 32 lights round court, and fixed on braced principals of iron tensions, and abridgment with pannelled coved ceiling springing off walls, and top of lantern ceiling coved, and divided into panels for painting. The contractors are Mr. R. Aughton, Jun., timber work, and Mr. John Whitehead, iron-work; the whole will cost 1,000*l*.—A motion



was brought forward in the Leeds town council lately to the effect, "That the council do erect a suitable town-hall, and that a premium of 100*l.* be given for the best design, on the understanding that the cost shall not exceed 20,000*l.*" It seemed to be thought desirable, however, that the burgesses should be afforded an opportunity of expressing their opinion on the question at the elections in November next, and the motion was postponed. Mr. Ald. Bower said he thought that Mr. Eddison wanted 10,000*l.* for ornament. He (Mr. Bower), on the contrary, would have a good plain building, for use and not for show, and he thought that 10,000*l.* would be sufficient to provide such a building.—The Houghton-le-Spring Catholic Church has been re-opened, after having been additionally decorated.—The "Tate Testimonial" Free Grammar School at Richmond, in Yorkshire, Mr. Andrews, of York, architect, was formally opened on the 27th ult.

#### ENLIGHTENMENT ON GAS LIGHTING.

THE price of gas at Gosport has been reduced to 6*s.* 6*d.* the 1,000 cubic feet, with the privilege of using meters belonging to the company on payment of 6*d.* additional,—the crude beginnings of a system which will yet be generally adopted in promoting the domestic use of gas, and that at a very small per centage on a much more moderate price.—The Winchester Company have reduced their price to 7*s.*, in the expressed hope of realizing such an increase of consumption as will yield them 5 per cent. profit, when they will further reduce the price.—The directors of the Amptill Gas and Coke Company, in a recent report, "impress upon the shareholders the expediency of reducing the price of gas from 10*s.* per 1,000 cubic feet to 7*s.* 6*d.*," feeling convinced that the increased consumption will more than compensate for the reduction in price. They also suggest that a per centage should be allowed to large consumers in addition.—"The Bury company," says the *Manchester Spectator*, "have decided to make a reduction in the price charged for gas. Some time ago, the price to parties whose annual gas rent was under 20*l.*, was 7*s.* per 1,000 feet. A gas consumers' association was formed, and shortly after the price was reduced to 6*s.* 3*d.* A further reduction of 9*d.* has been decided on; so that, in future, the charge will be only 5*s.* 6*d.* to rents under 30*l.* Those whose rent is 160*l.* will be charged 4*s.* 8*d.* only." A stupid system of charges with discounts running up to 30 per cent. on the nominal price, prevailed at Bury, as elsewhere, and repeatedly exposed by us: a change is now to be made in respect to discounts.—The Manager of the Salford Gas Works, which belong to the town, says of these works, in his last report,—"It affords me great satisfaction to be able to report from year to year the increasing value of this establishment, as a source of profit to the corporation. During the last eight years the demand for gas has been steadily on the increase, and the rental has advanced from the sum of 9,470*l.* 16*s.* 6*d.* to 14,463*l.* 15*s.* 11*d.*, or equal to about 53 per cent., while the scale of charges to consumers has been reduced three times (in all from 8*s.* to 5*s.* and 4*s.* 6*d.*). For the year ending June 30th, 1850, as compared with the year preceding, the increase in production is 10,564,500 cubic feet, and the increase in rental 364*l.* 7*s.* 10½*d.*, with a reduction of 1*s.* per 1,000 cubic feet. There is every prospect of a further increase in consumption of gas during the approaching winter." But so has it ever been, that a steady process of reduction in price has uniformly been accompanied by a more and more flourishing exchequer. The public are thus substantially grateful even for small mercies.—The *Morning Post* reports the results of recent experiments at Vauxhall-gardens, by the Count de Hombres, in the manufacture of gas from water on the principle of Mr. Gillard's invention, which consists in the decomposition of water, by passing a jet of steam over a bed of incandescent charcoal in a retort, the gaseous products of which are hydrogen and carbonic acid gas. The latter being separated by the action of quicklime in a purifier, the hydrogen, in a state of comparative purity, is inducted to a gas-

holder for use, to which end, as regards the lighting, the inventor has had recourse to the same experiment by which the intense light used in the oxyhydrogen microscopes is obtained. Pure hydrogen alone, with an unsteady flame, emits great heat. For lighting, Mr. Gillard has invented an apparatus of platinum wire, fitted to the burner, by which the flame is converted into a column of intensely white light; and, with a brass chimney, a steady light is produced, without smell or smoke. The experiments made at Vauxhall, under disadvantageous circumstances, are reported to have been completely successful. The invention, it is said, has been in action for a considerable time in Manchester, and has given universal satisfaction. Count de Hombres stated with confidence that gas could be manufactured at fourpence the thousand cubic feet! and that the cost of the platinum would make but a very inconsiderable addition to the charge, as its waste under such circumstances, if any, is so extremely slow that apparatus five years in use at Paris remains apparently perfect as put up.—Mr. H. Carter, Thirza-place, Old Kent-road, has patented some alleged improvements in burners, "consisting of more than one ring or sheet of flame, combined with a suitable chimney or chimneys, and supplied with atmospheric air, particularly adapted to ventilation." Concentric gas-burners have hitherto, he says, been generally constructed without due regard for the admission of that quantity of air only between the rings of flame which is requisite to ensure perfect combustion of the gas. The patentee also claims a mode of illuminating by cut-glass chandeliers enveloping and surrounding jets of flame, and a mode of ventilating apartments by means of gas burners.

#### ELECTRO-TELEGRAPHIC PROGRESS.

AN improvement in electro-chemical telegraphs has been recently patented in America by Messrs. Westbrook and Rogers, who claim "the recording of telegraphic signs on the surface of a revolving metallic cylinder, plate, or other equivalent surface, by means of an acidulated liquid or saline solution, or water, held between the point of the wire conductor, and the metallic recording surface, by means of a non-conducting porous substance contained in a glass, or other non-conducting reservoir, in which the recording fluid is contained, by which the use of every description of paper is dispensed with, thereby saving great expense in telegraphing."—Another American patent of a Mr. G. H. Horn claims a "new or improved electro-caustic telegraph, or application, to telegraphic purposes, of heat generated by electric apparatus, or a current or currents of electricity passed through a fine platinum wire, or other proper conductors or equivalents therefor, the marks produced in or through the paper, or other material used in connection with the heated wire, being regulated in their length and number, so as to be characters or expressions of letters, figures, or words."—The first general meeting of the proprietors of the Anglo-French Company for carrying out submarine telegraphic communication between this country and the continent, was held on Tuesday week at Paris, Sir James Carmichael in the chair. The report stated that printed communications, the original slips of which were now in the possession of the President of the Republic, had been telegraphed between coast and coast on 28th ult. thus securing the concession of the undertaking. The wire was purely for an experimental purpose. The directors had since opened negotiations with parties in Paris and London, having in view the complete formation of the company with a capital of 50,000*l.* Mr. C. J. Wollaston, C.E. produced specimens of the proposed permanent wire, which he stated would be of sufficient strength to resist almost any species of oceanic accident, whether from rocks, drifts, anchorage, or otherwise. Mr. F. Edwards, one of the directors, also alluded to the privileges the company enjoyed under the concession of exclusive telegraphic communication between France and England for ten years. Resolutions were passed adopting the report. Experiments are being made at Dover with the new cable, in which there will be four wires.

The cables, 4 or 5 inches thick, of gutta percha enclosed in wire rope, all chemically prepared, will cost 40,000*l.* Patents are secured for England, France, and Belgium. There will be two of these cables, each 20 miles long, and 3 miles apart, the whole weight representing 400 tons; and it is expected, that when chained down at the bottom of the sea, they will resist the anchor of a 120-gun ship. The whole of the permanent wires and works will be completed by May next, when it is proposed that H.R.H. Prince Albert and the Duke of Wellington shall open the communication on this side the Channel, and the President of the Republic on the other.—Within the last four months, no less than 1,000 miles of telegraph have been opened in the Austrian empire, making the total mileage about 2,000 miles, of which about one-quarter has the wires laid underground. Another 1,000 miles will be ready by next year. The telegraph now works from Cracow to Trieste, 700 miles. On 1st instant, the new telegraph union between Austria, Prussia, Saxony, and Bavaria came into operation, under a uniform tariff one-half the former charges.—Negotiations are being entered into with the Government authorities, it is said, for the establishment of the projected sub-marine telegraph across St. George's Channel. Preliminary surveys have been made, and the way is said to be comparatively free from rocks and shoals. Notice of intention to apply to Parliament next session for authorisation to lay down the line will be given. At present two telegraphic routes are proposed; the one of 64 miles across the channel, from Holyhead to Kingston and Dublin, and thence by the Great Southern and Western Railway on to Cork and Galway—the other from St. David's Head, on the Welsh coast, and on to Wexford, Waterford, and the extreme western points of Ireland to Berehaven and Crookhaven, the latter being the last points touched at by vessels outward-bound for the Atlantic.—Telegraphic communication is to be established between Dublin and Galway, the Midland Great Western Railway Company having ordered their engineer to lay down the wires to anticipate the laying down of the intended telegraph across the channel, thereby connecting London with Galway.

#### ARCHITECTURAL AND ENGINEERING NOTES, IN IRELAND.

ADDITIONS are being made to the Roman Catholic Church of St. Peter, at Phibsborough, county Dublin, under Mr. Bourke, architect: they consist of an extension of the present nave 19 feet, and the addition of an entirely new front 43 feet in width. In the centre is a tower 10 feet square inside, with walls 3 feet 9 inches thick: at the angles on the front and side of the tower, parallel with the face of the wall, are buttresses 4 feet wide, and 55 feet 9 inches high, surmounted by pinnacles. The upper length of buttresses have panels, and are chamfered on the arries: wings at each side of the tower, to have castellated parapets, are about 12 feet 6 inches wide, and have buttresses at the angles, similar in character to those of tower, but are only to be carried to a height of 41 feet, and surmounted by pinnacles. Total height to top of castellated parapet of tower, from ground line, 79 feet; to top of spire, 133 feet 6 inches; windows 2 feet wide by 8 feet high, in sides of tower on principal story. All the new walls are being constructed of broken joint ashlar; the dressings of punched and drafted work. The style is Gothic. Total cost, 2,000*l.* Mr. James Donnelly, builder. The Commissioners of Public Works have advertised for proposals for erecting a new bridge at Drumgoolestown, county Louth. The piers for the metal bridge across Lough Athalia, on the Midland Great Western Railway, are almost completed. Mr. George W. Hemans is the engineer to the company. The Ecclesiastical Commissioners are about rebuilding the church of St. John, Limerick, according to plans by their architect, and have advertised for tenders for same. A new Roman Catholic Church is being erected at Hilltown, parish of Cloniffe, and is to be consecrated on the 6th of October. Mr. Dargan, the railway contractor, has



commenced operations beyond the Tipperary junction, in laying down the earth works, in which the rails are to be placed, for the extension of the line from Limerick to Filtown, which is within about nine miles from Waterford. The roadway only is to be constructed by Mr. Dargan. The rails are to be set by the company's own workmen. The time allotted for the completion of the works is one year and a-half. The nature of the soil through which the railway is to pass being advantageous, it is expected that Mr. Dargan will have his portion of the works finished in a short time. The entire expenditure will probably be about 400,000*l*.

#### NEW STREET THROUGH LONDON WITH AQUEDUCT SEWER.\*

MR. BEARDMORE suggests, in a pamphlet recently published, that the drainage of the whole metropolis north of the Thames might be effected by a great sewer running from Wormwood Scrubs and the extreme west of London, through Kensington-gore and the Green-park, King-street St. James's, Trafalgar-square, the Strand, and Fleet-street, whence it would deviate to the South of Ludgate-hill, by Salisbury-square, St. Bride's Church, New Cannon-street, King William Statue, East Cheap, Great Alie-street, and the Commercial-road, onwards by Stepney Church, Bow Common, Bromley, and Plaistow, to the Thames at Barking-creek. Concurrently with the improvement of the drainage, he proposes to relieve the traffic by opening up a great line of thoroughfare made up chiefly of streets already running in the line of the proposed sewer. The sewage of the lower districts north of the Thames he proposes to collect and raise by engine-power into the great sewer. The cost of the whole he estimates at 1,500,000*l*., including 500,000*l*. for the completion of the line of street. The sewer would be about 12 feet in diameter from Charing-cross downwards, and the total length about 15 miles, in nine of which from the head downwards the fall would be at the rate of 8 inches a mile, and that of the aqueduct or remaining portion at the rate of 28 inches a mile. Mr. Beardmore also proposes, for further improvement of the traffic, to form two bridges instead of Westminster-bridge—one at Scotland-yard or Charing-cross, and the other at Picnic, removing the bridge at Westminster. This he thinks the less objectionable, considering the general connexion of the Westminster side, near the bridge, with the Houses of Parliament, courts of law, &c., all on the same side. By approaches connected with Victoria-street, the Picnic-bridge, he observes, would relieve the traffic between Belgravia and its vicinity, and the city, by diverting it from the Strand, and carrying it across the southern districts direct between the two extremes.

#### Books.

*Details of Gothic Architecture, measured and drawn from existing Examples.* By JAMES K. COLLING, Architect. Part I. London: Bogue, 1850.

THE author of the "Gothic Ornaments" has been encouraged to undertake the publication of another work of somewhat similar character. The "Details of Gothic Architecture," are to consist of a series of plates, showing, on as large a scale as possible, such features of the remains of English Ecclesiastical Architecture as have not been published or fully developed in other works of the same character. It is intended to illustrate, mostly, moulded and traceried work, rather than the foliated and sculptured; so that the work will form a companion to the "Gothic Ornaments," and a continuation of "The Analysis of Gothic Architecture." It is to be hoped that Mr. Colling will adhere to the promise to give only those specimens that have not been published, and that these be good.

We should not care, then, if this were the last book of the sort.

The work will be published in monthly parts, each containing five plates, and is to be completed in about thirty-eight parts.

\* Suggestions for a New Street through London, with a leading Aqueduct Sewer; also Remarks on the Metropolitan Bridges: with Map and Section. By Nathaniel Beardmore, C.E. &c. Waterlow, Parliament-street; and Weale, High Holborn.

#### Miscellaneous.

**SOCIALIST STRIKES IN FRANCE.**—An extensive confederation, or conspiracy, has been recently discovered, if not broken up, at Paris and in the French provinces, in which strikes have been instigated, it is said, by a deliberate resolution to ruin the manufacturers and capitalists, and realize the system of universal Socialism, in conformity with the theories of the Luxembourg in the first days of the revolution of February. The fraternity had a fund of 50,000*l*., ascertained to have been in their possession for propagandist and auxiliary purposes. Foremen were formally tried and convicted at their councils, and in one case eight foremen, "for attending too much to the interests of their employers," were sentenced to two years' suspension from employment (!), and perpetual incapacity for the rank of foremen in any establishment,—a sentence executed, it is said, to the letter. Workmen are, or have been, distributed by this association, amongst different establishments, for the express purpose of inculcating other workmen with the virus; and it seems at least to be questionable whether the conspiracy be even yet either fully laid open or broken up. The masters, in some cases, have met the rules of the association as to wages per day, fixed at 6*l*., without reference to either quantity or quality of work, by a counter resolution to employ workmen only on piecework. The contrast between those causes which appear to foster "savage Socialism," as *L'Ordre* calls it, amongst the French, and the repressive influences by which its sting is blunted, and its poison neutralized, amongst ourselves, is thus drawn (over-drawn a little it may be) by the Parisian paper just named, in remarks on Lamartine's recent impressions of English order and law:—"M. de Lamartine has just seen a nation great by the security of its laws, great by labour, great by manufactures, and which knew how to realize important reforms in the interest of the masses, and so prevent the breaking out of one of those catastrophes which profoundly trouble nations, and more frequently leave behind them ruins, blood, and regrets, than veritable ameliorations. The picture he draws of the magnificent undertakings of civilization, and of the multiplied and intelligent efforts of the rich or well-to-do of London to relieve all wants, to lessen sufferings, and relieve misery, by the aid of innumerable associations, which, in their infinite variety, appear to respond to all the calculations of human foresight—this immense picture, we say, is offered to the meditations of our country, to teach it how the work of a humane, peaceful, conservative Socialism may prevent the ravages of excessive, savage Socialism, which always announces re-dedications, and begins by causing ruins."

**THE MANCHESTER DESIGNERS AND THE INTERNATIONAL EXHIBITION.**—At a recent meeting, the Manchester designers resolved to contribute to the exhibition, and appointed a committee to promote the end in view. Mr. J. A. Hammersley, the head-master of the Manchester School of Design, stated at the meeting that the commissioners, in reply to a question suggested by him, had expressed a desire to have drawings from the designers of Manchester, of as high a class as they could produce,—higher than commercial requirements would demand, or than the facilities of the machines could accomplish. Mr. Hammersley suggested that there should be two classes of contributions, one consisting of patterns capable of being practically applied at present, and another of a higher class, which might not now be considered as practicable. He did not believe that there would be any limit to the number of colours in design sent to the exhibition; but he thought that as much high art, in form, could be displayed in two-coloured as in ten-coloured patterns. Mr. Hammersley explained that there was an express order of the commissioners that the designers' names should be attached to their designs.

**COLOSSEUM.**—The Panorama of Paris which has been so attractive, is about shortly to be removed, to be replaced by another picture by Danson and Sons, and which is now in a state of great forwardness. We have before this recommended a visit to this extraordinary work of art.

**BURY ATHENÆUM.**—The foundation-stone of this new edifice was laid by Lord Stanley on 3rd inst. It is to be erected in the Italian Doric style, in stone from Lord Derby's quarries near the town, and at a cost of 4,000*l*., from a design by Mr. Sidney Smirke. The Earl has presented the site as well as the stone. Lord Stanley delivered an appropriate address, in which he said that, amongst many other advantages, there was a great and prominent one in institutions such as this: it brings together in one common, one rational, one laudable pursuit, classes of society who, but for institutions of this kind, would see little of, and feel little for, each other, and have little feeling and sympathy in connection. It brings together classes of men whose pursuits in life are widely different, whose occupations are widely distinct, whose sphere of action is wholly separate, and impresses upon them practically the conviction that from the highest to the lowest we are all rational, intellectual, responsible beings, all endowed with higher faculties than those which tend to the mere attainment of earthly good, or the mere acquisition and support of bodily comfort: it leads us all to feel, moreover, that we are members of one common family,—the great human family,—bound together in one great communion and fellowship. We shall revert to the building.

**RAILWAY JOTTINGS.**—The London and North-Western directors have chosen a site for their new station at Chester, near to the city walls, and have ordered plans adapted to the site chosen, for a station for goods and minerals as well as passengers. The estimates for the passenger station are ordered for a plain building of white stone.—The low fares on the Sheffield and Rotherham line continue to yield a larger return than double the amount before yielded.—The Railway Commissioners state, it is said, in a letter to a gentleman in Newcastle, that they have had the Ouseburn viaduct of the York, Newcastle, and Berwick (North Shields) Railway, "inspected by one of their officers, who has reported that the feeling of insecurity referred to might have arisen from the slight construction of the permanent way, which has since been changed and a heavier description of permanent way substituted." The Commissioners add:—"The inspecting officer sees no reason to believe that the structure in question, in its present condition, is insecure."—On the Drumlanrig contract of the Nithsdale line the viaducts of Carron and Enterkin are completed.—A Glasgow paper complains of the mean accommodation at Coatbridge, "the best paying station short of Edinburgh and Glasgow" on that line of route.

**PROPOSED NEW STREET IN THE CITY.**—A numerous meeting of the inhabitants of Tower Ward has been considering a plan for a new street from the south side of the Corn Exchange, Mark-lane, to Tower-hill, traversing the site of the recent conflagration. A different plan for improving that locality was under consideration in 1846. The meeting, however, merely adopted a resolution, to the effect that the increasing traffic through the principal streets of the ward required immediate attention, and suggesting to the Commissioners of Metropolitan Improvements the widening of Mark-lane nearest to Great Tower-street. A separate resolution presses on the attention of the Improvement Committee that the widening of the end of Mark-lane, by the removal of three or four dilapidated houses, should be proceeded with at once.

**LIVERPOOL ARCHITECTURAL SOCIETY.**—The opening meeting of the above society was held on Wednesday evening in last week, at the Royal Institution, the president of the society, Mr. Pictou, F.S.A., in the chair. After some account being given of the society's last summer excursion, a paper entitled, "The Genealogy of Architecture and the Fine Arts," by Mr. Samuel Huggins, was read.

**BLASTING SEAFORD CLIFF.**—The necessity for fixing the sea-wall formed by the dislodgement, as pointed out by us in our notice of the operation, is becoming evident. We are told that the late high tide has already washed away a considerable portion of the chalk forced into the sea by the explosion; and that unless something be done to prevent further inroads of the sea upon the mound, the effect which was sought to be established is likely to be lost.



**STAIRCASES.—A CAUTION.**—It is now ten weeks since a friend, when lighting me down the staircase of his house, incautiously ran forward to place the light upon a slab in the passage, leaving me in the shade. I proceeded with my hand upon the rail, and when I reached the newel, naturally concluded that I had but one step more to descend. It was not so: there was one additional tread beyond the newel. Unprepared for this, in stepping forward I strained all the back muscles of my leg so severely as not to have been able to quit my house since, and have the probable prospect of remaining within doors several weeks more. A subsequent injury has, I am informed, occurred at the same place, but providentially the sufferer was confined only four days. In the course of this week, the surgeon who attends me was at a house, and the lady, anxious to see that he was in comfort, proceeded down stairs with a light. It was extinguished by a gust, and the newel of the rail being one step short of the actual termination of the stairs, she fell, and her arm was broken. May I ask you to warn architects and builders against the extreme danger attendant upon such a very common practice? I cannot yet be assured that I have not been rendered lame for the remainder of my life; and as, in the third instance, the sufferer is an elderly woman, it may terminate her existence.—R. K.

**LAMBETH PARISH CHURCH.**—At a vestry meeting, on Tuesday, Mr. Churchwarden Taylor drew attention to the subject of the repair and restoration of the church, by voluntary subscriptions. It was proposed to case the building with stone, similar to the tower, to make a new roof of lighter construction, and with a view to better ventilation, and, in fact, to restore the church to its original state. Under the proposed plan, upwards of 200 more sittings would be appropriated to the poorer classes. He was happy to say that many Dissenters had already liberally contributed. The gross estimate was 6,574*l*. He moved that the plans and specifications of Mr. P. C. Hardwick be sanctioned and approved. Mr. Taylor stated that there was no power to make a church-rate. Mr. Bushell moved an amendment. Mr. Taylor said the churchwardens had already received, from the rector, 100*l*.; Archbishop of Canterbury, 100*l*.; London and Westminster Bank, 100 guineas. The original resolution was carried by a majority of 42 to 1.

**THE MARBLE ARCH.**—Will you permit me to inquire of you, whether, among the many suggestions which have been offered as to the site of the Marble Arch lately taken from St. James's-park, the situation at the entrance to the Avenue in the Regent's-park has been named? This ornamental walk is now growing into importance and beauty: its length and public accommodation merit a suitable entrance, and although I do not greatly admire the structure I refer to, it is adapted, as to its magnitude, to the place which I have mentioned, where there is nothing to obstruct its being well viewed, and the trees and verdure near it will act as reliefs to the eye in contrast with its colour.—JOHN WHITE, D.S., St. Marylebone.

\* Such a suggestion has been made in our pages.

**MACADAM IN PARIS.**—"The mud produced on the macadamised part of the Boulevards is (says the *Monteur du Soir*) to be turned to account. A person, named Taboureaux, has obtained permission to carry it away for the purpose, after having had it carefully washed and sifted, of having the silicious particles made into bricks to clean knives with. A hectolitre of the mud produces ten bricks, which are sold at 20*c*. each, and so give 2*f*. for each hectolitre. It is said that a good workman can earn 20*f*. a day by this new kind of industry."

**SOMETHING TO BE BUILT AT PINNER.**—The sum of 45,000*l*. in money and land has been assigned by Miss Howard, of York-place, for the following uses:—To erect twenty-one houses on her property at Pinner, near Harrow, in the form of a crescent; the centre house for the trustees; the other twenty houses for the sole use of twenty widows, who are to occupy them free of rent, and to receive also 50*l*. a-year, or more if the fund will allow. The trustees appointed are the Earl of Fingall, and Mr. W. A. Mackinnon, M.P.

**CLAY FOR INDUSTRIAL PURPOSES.**—Your allusion to clays for pottery manufactures, in an article in your journal, entitled, "The International Exhibition," reminds me of some specimens of that material which I have seen in the neighbourhood of Billericay, in Essex, and to which I would call the attention of your readers living in, or acquainted with, that locality. The clay is of the palest yellow tint, and of exceedingly fine texture, and would, I think, with an admixture of silica, or pulverised flint, produce very good earthenware of the commoner sort. In its pure state it is not fit for exposure to the weather, though it is susceptible of a polish, as may be seen in some of the dressings and fence-wall-cappings of the Billericay Union Workhouse. The red clay of Essex is also of very fine quality, and many windows of the sixteenth century have their tracery executed in it. A specimen was exhibited at the Architectural Exhibition this year.—W. S.

**HARMLESS PAINTS.**—Amongst the recent American patents is one by Messrs. Leclair and Barnet, the object of which is set forth to be a complete reform in the art of painting, by substituting unalterable and harmless paints for those having lead and copper, which are poisonous substances, for a basis, and which are liable to speedy alteration, and never produce perfectly clear tints. This reform is effected by the discovery of methods of obtaining on a large scale the white and yellow of zinc and barytes, zinc green, and antimonial red, which products, used as such, or combined with other harmless and unalterable colours employed in painting, form a complete scale of colours, with all the intermediate grades.

**ANOTHER CARPET FOR THE '51 EXHIBITION.**—Having noticed Mrs. Purcell's proposition for a carpet to be worked by ladies of England for the International Exhibition, we have been asked to mention another which is in progress for the same purpose, under the patronage (as it is called) of the Lady Mayoress. It was designed by Mr. J. W. Papworth, and the patterns were made by Mr. W. B. Simpson. It is to be 30 feet long, 20 feet wide, and to consist of 150 squares. We happen to know the work of half the fair damsels who have taken upon themselves the responsibility of the squares already appropriated, and have not the least doubt that the carpet will be as correct as their lives, as strong as their good intentions, and as varied as their accomplishments. Of the time that is wasted over Berlin wool it would be ungenerous to speak just now, when it is about to be applied to a special purpose, but there are some to whom a little advice on this subject might be useful. There is something else to be done in this world besides counting "two to the right and four to the left." We must wind up, however, or it will be said we are wool-gathering.

**SLATE-DRESSING APPARATUS.**—A patent has been taken out by Mr. Nathaniel Mathews, of Wern, Tremadoc, Carnarvon, quarry proprietor, for an apparatus for cutting or dressing slates into various shapes and sizes. This machine may be employed to cut fancy slates, by having cutters of the required form, and when actuated otherwise than by hand labour, an eccentric and fast and loose pulley may be used to actuate the cutter.—*Mechanics' Magazine*.

**DR. ARNOTT'S PUMP FOR VENTILATION.**—We examined, the other day, at Mr. Bailey's, Holborn, a pump, on a novel construction, which has just been completed, for forcing pure air into the new County Hospital at York, but are compelled, by want of space, to postpone a notice of it. Dr. Arnot assisted to explain it, and Sir Thomas Deane, Dr. Ure, Mr. Donaldson, Mr. Fowler, Mr. Laxton, and various other gentlemen interested in the question, were present.

**ARCHITECTURE AT UNIVERSITY COLLEGE.**—The lectures on architecture and construction at University College, for the ensuing session, will commence on Tuesday, the 15th inst. Professor Donaldson sets forth the following as the results sought to be produced by them:—"A systematic comprehension of the subject; a methodical mode of thinking and reasoning on the various matters considered; an interest in each branch of the science and art by illustrating precept by example, the laws by their application; a review of the history and styles of art, and of the best monuments of every period; an acquaintance with the

eminent architects of each epoch, and with their works; a general perception of the laws of taste; a knowledge of the principles of construction; a practical view of the varieties and properties of materials and their peculiar and most economical application; and an examination and comparison of the mechanical contrivances available in construction."

**FOREIGN TILES.**—Some remarkably large importations of roofing tiles and bricks are taking place at the present time from Antwerp, the manufacture of Belgium. One vessel, the *Active*, from Antwerp, has brought 27,612 roofing tiles, and 6,000 bricks; another, also from Antwerp, has brought 27,000 roofing tiles, 4,000 paving tiles, and 3,000 bricks.

**FIRST USE OF PAPER-HANGINGS.**—It was on the walls of this drawing-room, the king's at Kensington-palace, that the then new art of paper-hangings, in imitation of the old velvet flock, was displayed with an effect that soon led to the adoption of so cheap and elegant a manufacture in preference to the original material from which it was copied.—*Notes and Queries*.

**SURVEYORSHIP, ST. JAMES'S, CLERKENWELL.**—This office (which comprises the surveillance of Pentonville, &c.) becoming vacant, seventeen candidates came forward. Six were selected, viz. Messrs. Finlay, W. P. Griffith, W. Lovell (district surveyor of Stoke Newington), Arthur Taylor, Josiah Houle, and W. F. East. After a poll the numbers were announced to be as follow:—W. Lovell, 13; W. P. Griffith, 10; W. F. East, 9.

**SURVEYOR TO THE BOROUGH OF BOLTON, UNDER THE PUBLIC HEALTH ACT.**—There have been about thirty applicants for the office, out of whom, in the first instance, a selection was made of six. Eventually Mr. John Smith, of Altrincham, architect and surveyor, was appointed.

**PUBLIC CONVENIENCES.**—I am glad to find that a correspondent has again revived in your pages the necessity of increasing the number of public conveniences. It is true, Mr. Editor, you can claim the merit of from time to time noticing the want; but I cannot help thinking that the public have a right to claim your constant advocacy to remedy the evil. The subject is alone suited to a professional paper, and from the reputation of *THE BUILDER*, the public hope to receive from such a source a plan whereby, not only in point of number, they may be made fully sufficient even for the visitors of the year '51; but also some plan by which the existing places may be made wholesome and not be allowed to emit poisonous evaporations that render the contingency of a urinal a loss of 25 per cent. to the owner of the adjoining property. Decency and comfort require that this subject should not be left to private individuals to erect any sort of York-stone or cement contrivance, but rather that the different paving-boards or parish authorities be compelled to erect a sufficient number, and keep them in proper repair.—B.

\* We have several plans before us, but have not determined on publishing them.

**PHOTOGRAPHIC IMPROVEMENT.**—The *Boston Transcript* states, that a Mr. Howes of that city has discovered a means by which a miniature-sized daguerreotype may be magnified to life size, or larger, if necessary, and reflected upon a canvass, or any flat prepared surface, so that an artist may seat himself before it and paint it as it appears.

**TO RENDER STONE IMPERVIOUS TO WET.**—The recipe adopted by Mr. Sylvester was used some years ago on one of the public buildings in Oxford. The architect can probably speak as to its success. I believe the process may be much simplified by using soft soap, which dissolves in cold water: the quantity depends on the texture of the stone: the saturation of alum may be used as soon as the soap water has dried off, and should produce a coat impervious to cold or hot water.—X.

#### TENDERS

For five Fourth-rate Houses and an intended Public House in the Finsbury-road, Bow. The quantities supplied. Mr. Wm. Dobson, Architect.

Turnvill .....	£2,940
Messrs. Curtis .....	2,514
Hill .....	2,774
Crook .....	2,687
Hall .....	2,489
Elston .....	2,450
Smith .....	2,136
Perry .....	2,007



For descriptive drawings, &c., apply to the inventor, 29, Great  
Charlotte-street, Blackfriars-road.







# The Builder.

No. CCCCII.

SATURDAY, OCTOBER 19, 1850.



THE following letter has been addressed to the Right Honourable the Lord Mayor elect, Mr. Alderman Musgrove:—

My Lord,—At one of the Old Bailey dinners last year, Mr. Hill afforded me the opportunity of mentioning to you an often-repeated regret on my part, that no endeavour was made to improve the character of the annual city "show" on the 9th of November. I ventured to remark, with reference to the antiquity of the proceeding, and its interesting character, that some little invention and taste might, at all events, be exercised upon it, in lieu of repeating year after year the same dull and effete routine; and I suggested that, as it would probably soon be your privilege to act as chief magistrate of London, you should strive to vary the character of the procession, revive its associations, and introduce into it some work of modern skill and ingenuity. You were good enough to say that you felt the force of the observation, and concurred (so far as a first hearing would justify), in my views: and you invited me, when the proper time came, to place the subject again before you.

I gladly comply with the request, and will first remind your lordship of the extent to which the mayor's "riding" or "show" was carried in early times. It appears to have been originated by the provision in the charter granted to the city by King John, in May, 1214, that every new mayor should be presented to the king for approbation. The earliest show of which we have any mention is that recorded by Matthew Paris, as taking place in 1236, when Henry III. was king. The first recorded exhibition by the trades of London in the ceremony took place in 1298. The water-procession was introduced at least as early as 1436. Besides the usual procession a scenic spectacle afterwards came to be introduced, under the title of a *pageant*. The earliest notice of one of these yet found relates to the show of 1510. There is a printed account of speeches delivered by the characters in the pageant of 1585, from which it may be inferred that an emblem was then exhibited, setting forth the excellencies of London, "rich and fortunate."

I need not say, as a mimic Sir William Walworth was made to say in the fishmongers' pageant on Lord Mayor's Day, 1616:—

"Now, worthy lord, there is imposed on me  
A brief narration of each several Show  
Provided for this triumph!"—

But I will allude cursorily to one or two of them, to recall the elaborate character of the shows at that time. Thus, in the pageant for 1613, "The Triumphs of Truth" for the mayoralty of Sir Thomas Middleton, in Cheap, appeared "London's Triumphant Mount," piloted by a mist, cast over it by Error's friends, Barbarism, Ignorance, Impudence, and Falsehood,—four monsters with clubs. At the command of Truth the mist vanished, the cloud suddenly rose, and changed into a bright reading canopy, stuck thick with stars. In the midst sat London, with Religion, Liber-

ality, Knowledge, Fame, and Meekness. The pageant moved on: Error again threw London into a mist, and the clever machinist again dispelled it, to typify the power of truth.\*

The pageant of 1617 set forth "The Triumphs of Honor and Industry," and might be taken for a foreshadowing of what is to happen in 1851. In the course of it, Industry declared the joy she diffuses to the world, and introduced the "pageant of several nations" to honour the mayor, wherein figured an Englishman, Frenchman, Irishman, Spaniard, Turk, Jew, Dane, Polander, Barbarian, and Russian.

Several years afterwards, too,† amongst other curious devices, a figure was set up at Foster-Jane, habited in the manner and fashion of several nations which trade with Europe, and was made to say,—

"Although my shape may seem ridiculous,  
Unsuitable, rude, and incongruous,  
Content me not; there's nothing that I wear  
About me but some relation bear  
To the customs of those countreys with whom  
You traffique in all parts of Christendome."

This was the Industrial Exhibition of 1661. The majority of the pageants were fanciful rather than instructive, but still had thought and skill in them. Men of wit were engaged to devise them, and skilful mechanists and carvers to execute. Inigo Jones did not think it beneath him to apply his inventive powers in the preparation of similar devices for the Court. "Invented and fashioned, with the ground and special structure of the whole worke, by our kingdomes most Artfull and Ingenious Architect, Inigo Jones," appears in varied words on the title-page of several pageants. "In these things," says Samuel Daniel, who wrote the words for one in 1610, as Ben Jonson had done before, "wherein the only life consists in show, the art and invention of the architect gives the greatest grace, and is of most importance."

It was a common practice to symbolize the company to which the Mayor belonged; also, to pun poorly on his name. Thus, in a city pageant, in 1415 (though not Lord Mayor's Day), when Henry V. returned from Agincourt, because John Wells was Mayor, the whole show was

— "Devised notably indeede  
For to acordee with the *Maiers* name;"

and three *wells* which ran wine were exhibited at the conduit in Chepe. So, too, in 1616, when Mr. John Leman was Mayor, "A leman tree in full and ample forme" made part of the pageant.

In the "riding" of 1672, the progenitors of Gog and Magog in Guildhall‡ marched in the van. In earlier times giants always formed part of such processions, not merely in London, but elsewhere,—as in Spain, Antwerp, Chester, Salisbury, Coventry, &c.

The last Lord Mayor's pageant publicly performed, says Mr. Fairholt, was seen by Queen Anne, in 1702. Pageants were devised for the show in 1708, Elkanah Settle being the laureate;§ but these were not exhibited, in consequence of the death of the queen's husband, and after that date the

\* For this and much more see Mr. Fairholt's very interesting "History of Lord Mayors' Pageants," printed for the Percy Society, 1848. See also Middleton's works, Stow, Hone, &c.; also "Chrysanaleia, the Golden Fishing," devised by Anthony Munday for the mayoralty of 1616, at the charge of the Fishmongers' Company, and recently edited (with engravings of the pageant) by Mr. John Gough Nichols.

† During the Commonwealth the pageants appear to have been stopped: at all events, they are not recorded.

‡ Anciently called Gogmagog and Corineus. The history of these figures is very curious.

§ "Now, night descending, the proud scene was o'er,  
But lived in Settle's numbers, one day more."  
Pope's *Dunciad*.

Mayor's show dwindled to what it now is, and has exhibited few variations since. In 1761 the ancient pageantry was, for the last time, revived by Sir Samuel Fludyer. The present state-coach was brought into use four years previously.

In 1822 Alderman Heygate introduced the three knights; Alderman Lucas, in 1837, had two colossal figures of wicker-work, representing Gog and Magog; and Alderman Pirie, in 1841, introduced an ancient feature, in the shape of a model of a ship, which has been since repeated.

Now, my suggestion does not go to practical puns on the Mayor's name. I do not desire, my Lord, to see, for example, a huge mouse of wicker-work on wheels, seated gravely beneath luxuriant trees, which the old devisers, for want of anything better, would have made to signify

*Mus—grove;*

nor do I suggest representations of mermaids and tritons, or Magnanimity "habited as a Roman," or fat little incarnations of the Graces and Virtues. But I do think with Thomas Middleton (1613) that some "art and knowledge, equal to the liberality of the City, should be displayed in the invention of their pageants." It would be matter for great regret if so interesting and ancient a proceeding as the Lord Mayor's triumphal "riding" were abandoned. I would not have the multitude lose the enjoyment of a time-honoured sight, intended to shadow forth the wealth, ability, and magnificence of wonderful London, and not without value as an incentive to every beholder, since, as was sung in 1664,—

"For aught we do know, there's ne'er a lad here  
But may be Lord Mayor, or something as neer."

And therefore I would raise it out of the monotonous and prosaic routine into which it has fallen, by the introduction, among other changes, of emblems and works of art, accordant with its ancient character, and worthy of the present time. In lieu of the men in mock armour, who have had a long run, or in addition if you please (making their costume real), you might introduce, say three compositions typical of manufactures, agriculture, and the arts; and do honour, if it were but by a series of banners, to the great minds that have taught and raised the world, and to the past worthies who have specially served, adorned, or otherwise improved the City. "Peace has its victories as well as war." Your Lordship, I know, thinks it is time the world gave honour to those who gain such. I do not venture, however, here to set forth what shape the show should actually be made to take: appropriate designs if sought would be obtained without difficulty: my present object will be attained if I succeed in making evident to your Lordship, the desirability of rendering the Mayor's show more worthy of this great city and time than is now the case.

With respectful expressions of a hope that your Lordship's presidency may redound equally to the good of London and your own honour,

I am, Sir, your obedient servant,

GEORGE GODWIN, F.R.S.,  
Citizen and Tiler.

Brompton, October 1, 1850.

We are glad to hear that the above has been referred to the Lord Mayor and Sheriffs' Committee for conducting the entertainment, and trust that improvement will, at all events, be commenced in the Show on the approaching 9th of November.



## ON LINEAL EXPRESSION AND ARCHITECTURAL DESIGN.\*

## PROPORTION.

In former remarks on the nature of Beauty, the writer came to the conclusion that right lines could not produce, but might essentially aid, its development in architecture. The importance of its aid is undeniable, and its analogous expression to the three principal qualities of strength, beauty, and grace, for instance, is certain, as shown by the three Grecian orders; or, rather, in these three columns we have the difference of proportion suited to three phases of the beautiful.

Form may be called the melody of architecture, with which proportion, and all other aids, should harmonise. As the form alters, so must the proportion, and for the innumerable varieties of expression which form is capable of producing, there must be as many varieties of proportion, and every slight deviation in proportion will produce a tantamount change in character. To give a strong massive prison the doors and windows of a Roman temple, would be wrong, if merely from the incongruity of character as expressed by proportion: it would be like giving to the body of the Farnese Hercules the beautiful limbs of the Apollo. The Strozzi Palace, Florence, is allowed to be a perfect work in its way,—harmonious, as a mass, and pleasing in the idea of compact strength which it presents to the mind. The whole form of this building is rather longer than a square; the cornice about one-thirteenth of the whole height; the door and windows, including their component mouldings, averaging rather more than a square in height. None of these proportions are beautiful in themselves, but they have the proportion which assimilates to actual strength, with an increase which tends towards the double square, which is beautiful; and they are excellent for expression of the required character. Proportion is nothing by itself, as in plane geometry for an artist's eye, but depends on the analogy of its character to the building in which it is used, and is to be gained only by study and observation,—very slightly, I believe, by innate perception: the two former will certainly inform us as to its efficacy, but the scientific rule which would determine it is surely most suspiciously to be received, if it be true that every variety of character requires a different proportion. Moreover, the unreasonableness of such a rule as an abstract truth, must, I think, be evident. Alberti says, the width of a space being 4 feet, and its length 8 feet, the proportionate height, or the height most agreeable to the eye, is 6 feet, as being equidistant from 4 and 8; but make this form and it certainly has no particular charm. Others say, the width being 4 feet, and the length 8 feet, the height should be three-fourths of the two added together; but the proportion thus produced bears in itself no claim to the beautiful. Even were they correct, as proportion must vary to suit the character of the building, these, or any other rules, can never be unchangeable. Surely we have sufficient examples on which to ground our knowledge of the general principle of proportion, without shutting our eyes to the existing proofs of it, and seeking blindly for its laws in any science. Take, as an instance, the doorway of St. Sebastian, Mantua, by Alberti, and the door of a house, Verona, by Sanmichele. Here are two apertures relatively proportioned, each being much less than a double square, and with neither proportion does the beautiful work around assimilate well. Yet, of the two, is not the breadth and massiveness of Alberti's detail best, because the ornament and proportion more nearly approach each other in character? Here it is evident that much less than a double square does not suit graceful ornament; but in Italian architecture generally, and in classic too, a double square does unite with the beautiful character of its surrounding work. And in cinque-cento, where everything tends to grace, and even to weakness, we find the proportions becoming more and more elongated. This is as regards various changes of the beautiful, the essence of which is variety, and this enforces a degree of regularity, without which it would run into irregularity, which is the essence of the picturesque. That all things which we may

justly call beautiful are subject to this rule of a varied regularity, may be seen by looking at the proportions of human beings, and many other beautiful animals; and that the rule of irregularity prevails in the proportions of the picturesque, is seen in the branches of trees, the edges of rocks, &c. For this reason any architecture essentially picturesque in its character, may be more capricious in its proportions, without detracting to its merit as excellent art, although in such a case the fundamental effects of proportion should be known and kept in mind.

The proportions of window openings and interspaces, of openings and their architraves, are not to be set out invariably on the dicta of any men—the first especially must in practice materially depend upon necessity; and moreover, it may be remarked, that even where windows have only the same space as themselves between them, the same idea of breadth and strength which more than double their width between them gives, may be gained by extra height between their heads and the cills of the next floor openings; and though we owe much to the investigators on proportion as to the effect of inter-widths, we have no data, if I remember rightly, about inter-heights, which, for a noble appearance in a building, should be as great as is usually possible. As to the proportion of architraves being not less than a sixth or more than a fifth of the void, it is difficult to conceive on what grounds it is asserted. Many most excellent openings, even in Italian architecture, have more—the gate of Ghiberti, at Florence, for instance. In other styles it would be useless to particularise what would be the general rule.

Not that from this it is to be inferred that in classical art these rules of proportion can be harmlessly played with by every one. Rules of whatever kind are most valuable when not meant to repress design, and as a starting point from which we may see how we can effect improvement. Indeed, though they have had the effect of making architecture a commonplace business, executed by commonplace men; yet to one who has been tossed about in the uncertainty of original design, they are like *terra firma* to his unsteady footing. These rules of proportion, especially, are most difficult and most valuable, and that they have been departed from at times with great success, is no depreciation of their use for the ordinary practitioner. These deviations were effected by men of great genius, guided by study.

Variety of proportion is, however, necessary; but this difference will, in ordinary buildings, be of so slight a nature, as to be unperceived by the public, and can be easily ascertained by taking the double square in voids for the standard proportion, and so on in other fixed proportions. That the proportions must needs vary, may be inferred from the fact, that a balustrade on the ground and a balustrade over the cornice ought not to be the same; that a column, perfect as a ground support, would require an alteration when placed on a basement; and that the Doric column of ancient Greece are not quite fitted for a balustrade without alteration, as I have often seen them. The necessity for this difference of proportion in one subject is well shown by the different heights of the three orders.

An acute and valued investigator of the principles of art has asserted that irregularity of proportion is the cause of beauty in architecture, and has brought forward a Grecian cornice as a proof; but he has been misled by the seeming irregularity of a portion of a whole, and however varied a cornice may be in its inferior divisions, yet it bears a regular proportion to the whole mass, and to each individual member of that mass, founded on a scale taken from the diameter of the base of the support or column, to which all the subjects of the composition, dado, base, shaft, capital, and entablature are referable in regular quantities. There are other examples given, but none so apparently confirmatory as this, of a very dangerous error, viz., that irregularity is productive of beauty. Were this the case, the most confused forms would be the most beautiful. Irregularity means without rule, and is only applicable to the picturesque.

## FOREGROUND AND BACKGROUND.

Everything is enhanced or lessened in value

by its concomitants: *setting off*, to use a common expression, is much neglected, often entirely disregarded, and yet is a matter of much import. The toll of the cathedral-bell, heard by night in some deep and gloomy valley, sounds awfully and warningly, and has a terror in its measured solemnity; yet the same sound heard in the sunny cloisters, where the wild weeds grow and the lizard has no fear, becomes tranquillizing and melancholy; and as you rest in some retired nook, and catch the sweet voices of the choristers and the pealing of the organ, in harmony with the rustling of the green leaves, you enjoy a holy pleasure, which the same strain could never impart in the crowded hall, though executed by the most celebrated artists.

The character of everything changes with the character which surrounds or accompanies it. Westminster Abbey has never been a Gothic cathedral to me: even at night, the distant roar of the troubled world destroys that feeling of serene and perfect quiet which seems to shadow forth the quiet of heaven. This cathedral has never seemed to me to belong to modern London, but rather to be the valued, venerable, and glorious relic of a past state of society, a past creed, and a past age, to which we of the present day bear but a slight affinity.

In architecture, this setting off is gained by the foreground and background: every building, to form itself into a perfect picture, must have these; and it seems to me a great error, even in the largest buildings, to suppose that they contain these advantages in themselves. Such buildings as Whitehall, or the Library of St. Mark's, Venice, the Farnese, &c. have evidently no claim to such an arrangement, nor has an ancient Grecian temple,—yet they are considered perfect works of art in all respects. In these and in all buildings, the work itself does in reality form the principal composition, to which the surrounding buildings and figures, or nature, form the foreground, and the surrounding distance and sky the background. That this is the case is allowed by painters, and is the method of their making architectural pictures. How well does the irregularity of Gothic outline harmonise with the jagged clouds of a northern sky—with the sharpness and action of our climate; and how well does the calm beauty of a Grecian temple agree with the unclouded expanse of its bright blue atmosphere—with the repose of a climate where days and nights glide on equally serene and equally beautiful. There is more in this analogy of character, perhaps, than we are apt to believe; extending even to the costume of the people who move around us, and which makes the modern citizen's dress become worse than nothing among the ruins of ancient Egypt.

A neglect of the necessary accompaniments of a new building, or a want of good taste arising from a love of novelty, or a blind admiration for some particular style, too often leads to the grossest anomalies in this respect, and many buildings, excellent in themselves, are so placed as to seem dropped down there from some other world. This is a complaint under which we suffer, which has no cure but time; but if we work up to the principle before expressed, we shall avoid over-irregularity in a large city, whose size and grandeur demand a certain degree of simplicity and massiveness, and keep our more fanciful ideas for their picturesque and rural attributes, rocks, trees, clouds, and running waters; and be likewise sure that the picturesqueness of a castellated building on the Rhine, rock mounted and surrounded, is not the picturesqueness which is fitted to a castle situated amid quiet lawns and well-trimmed gardens.

That this principle should be advocated is the more necessary from the fact, that those high in authority, whose influence the student feels, do often expressly denounce anything but the study of the actual building in considering a design, and have by this teaching themselves left the breach open by which we are flooded with imitations of all the styles of antiquity, without regard to their situation, and have given ground for belief that all buildings possess that advantage in themselves, to which even St. Peter's or St. Paul's but slightly attain.

In making the rough sketch of an intended building, it should be done from various points, and always in relation to the objects

\* See p. 459, ante.



around it: this having been once satisfactorily made out, the building may then be a study of itself. Had this been done we might have avoided having consecutive buildings in all the most widely separated and unharmonising styles, disagreeable only from their juxtaposition: moreover, wherever great projections occur, the visual ray should be projected from the ordinary point of sight, and all ornament avoided within the angle it covers. From want of due reflection I have seen many cases of rich work being lost, and it is better to exaggerate the inclination of the visual ray, than to put in ornament as though the building could ever be seen in geometrical elevation.

J. B. W.

## DRAIN LONDON AND PRESERVE THE THAMES.

"Vitalis auras carpit?"

THE continually recurring discussions in the public journals on the means of removing from the vicinity of the metropolis of the empire the daily increasing mass of sewage matter, and of turning it to some useful purpose, exhibits at once the importance of the question and the difficulty of the solution. The discharge of the sewers into the Thames, contaminating its otherwise useful waters, and filling the air with baneful exhalations, is deprecated by every one; and yet, strange to say, there appears to be no present prospect of the nuisance being got rid of except by the old channels.

By the present system of sewage the atmosphere is polluted, the public health endangered, and two good things of inestimable value utterly wasted—worse than wasted—they are rendered noxious! These are, the sewage matter, which ought to be so valuable, and the water of the Thames, which should be a blessing, instead of an object of loathing, to the metropolis. To seek an outlet elsewhere than in the Thames, the whole present system of sewage would have to be abandoned, all the work that has been done would be rendered useless, and new experiments, at the expense of hundreds of thousands, perhaps, of millions of pounds, would have to be made, and which might end in disappointment—in having to return to the river again, or, failing in their object, might render the metropolis so pestilential as to rapidly diminish the population, now swarming in its busy streets and public places.

The fall of the ground and flow of the water are naturally in the direction of the river. The existing sewers all, or nearly all, ultimately discharge into it. To turn their course inland, and find a vent for them there, would be a labour far surpassing all the twelve for which Hercules was defied.

A scheme was some years ago proposed for the drainage of Dublin, and abandoned after some consideration. This is now brought forward, among others, as feasible for the same purpose in London. It consists, principally, in retaining the existing sewers, making them discharge into covered canals on both sides of the river, and running parallel with it. The expense of constructing such canals would be enormous, and the time required to complete them would necessarily be very great from the numerous natural and artificial obstacles to be contended with. When completed there arises the question—Where are the canals themselves to be discharged? After absorbing the myriad of comparatively small nuisances, what is to be the destination of the monster accumulation of all that is abominable? Such canals, running parallel with the river, cannot have a considerable fall; there is consequently a risk of a stagnation of their poisonous contents. No ebb and flow will reach them, as is the case with the river, and carry off their impurities. In their whole length it is to be supposed they are to be air-tight, or, at least, that they are to be so constructed that their mephitic vapours may not ascend into the crowded dwellings of the city above. Moreover, these canals will be the debouchement of the sewers which will thus be shut out from inspection from below by an atmosphere to breathe which would be death. Bad as the sewers are which discharge into the Thames, they are, nevertheless, within the reach of inspection, and, by the aid of the tide, of flushing, and of mechanical agents, all collections of impurities and of noxious gases are quickly removed.

Such considerations are so important that they can hardly be exaggerated. It must be remembered that plague was once endemic in London; and that cholera, typhus, scarlatina, diarrhoea, and other epidemics which rage periodically at this day are attributed principally to imperfect sewage. It becomes the public to watch closely experiments of such vital importance, and to be certain that what is intended for improvement does not turn out an engine of mischief, increasing our present ills, and conjuring up those worse scourges from which our country has happily been many years free.

The frequent discussion of this subject, and its manifest importance, must have led almost every intelligent person, professional and unprofessional, to reflect on the subject. In doing so the writer

has been reminded of the somewhat peculiar, but, nevertheless, efficient mode by which the Chinese have for ages not only avoided a great evil, but, with characteristic ingenuity, have converted it into a positive advantage. With a hot, damp climate, the best suited, perhaps, in the world for the propagation and retention of malaria, and a dense population of not over-cleanly habits, the cities of China are free from epidemics resulting from the want of proper sewage; and yet they all, like London, seek an outlet by the river, but not into it.

The Chinese know too well the vast reproductive value of manure, and have too great difficulty in supporting a teeming population to throw into the water that which can be so valuably disposed of on shore. At the quays of every city in China there may be seen at daylight in the morning a string of boats carrying on active traffic with long lines of porters, who arrive and depart with the industry and regularity of ants. Each porter, on his brawny shoulders, carries a bamboo, from each end of which is suspended a pail full of sewage matter. Bargains are rapidly made and the contents of the pails thrown into the tanks on board the boats, which, as they are filled, close their hatchways and move off to make room for others. So valuable is this trade considered, that considerable sums are paid by the boatmen for licences, and the porters even pay the housekeepers for the material which they remove, so that their portion of the profit is, probably, little more than the fair remuneration for their labour. Companies are established in the cities who find it a profitable investment to establish "Inadores," similar to those in France, but where every one is hospitably entertained without payment.

The sewage matter thus collected is taken to considerable distances, and materially assists in the production of the continuous crops which are taken from land in China, in rapid succession, without impairing its fertility.

The means I may suggest for the sewage of London are similar as regards the saving of the sewage matter, and in using the river as the channel by which it may be removed, carefully avoiding, however, any admixture of the two. Instead of making use of the shoulders of porters, London may safely venture to adopt other and more scientific means to arrive at the same results. The present sewers might continue to be the porters as far as the river, but when there let the sewage matter be discharged into receptacles prepared for the purpose. These receptacles should be shafts built of solid masonry, and lined with Seyssel asphalt: a flood-gate, or portcullis, would be required to connect the perpendicular shaft, used as a terminal receptacle, with a horizontal one into which the sewage-matter might be allowed to flow in sufficient quantities to permit of its being deodorised in twenty-four hours. Every night the deodorised mass might be removed, by the river, in tank-boats constructed for the purpose, to be used as manure, or to undergo, if necessary, a further and more complete process of deodorisation. By the adoption of this measure, the present sewers may be generally maintained, or, where they discharge inland, they may be conducted to a similar terminal receptacle at the side of the nearest canal or railway, by which the peat-charcoal, lime, and other deodorising substances may be conveyed, and the manure afterwards removed to the interior of the country.

It may be urged in objection to this scheme, that the sewers are the drains by which all the waste water of the metropolis is discharged into the river. This would deteriorate the sewage matter by diluting it, and, by greatly increasing its volume, there would also be required terminal receptacles of greater capacity than would be necessary if the surplus water could be otherwise disposed of. It would also necessitate a greater number of tank-boats, and larger quantities of peat charcoal, for the purpose of absorption as well as of deodorisation. A certain quantity of water would be requisite to carry off the impurities which would otherwise collect in the bottom of the sewers; the quantity necessary could only be ascertained by actual experiment; would be different in different localities, depending on the capacity and inclination of the sewers and the facilities with which the contents could be expelled; a smooth surface could be cleansed with less water than a rough and broken one; a sewer with a considerable fall, than one of more moderate inclination.

To furnish an adequate but not superabundant supply, the surplus rain-water would have to be discharged into the Thames by pipes, which might be conducted through the sewers, without any admixture of their contents taking place. A trap in connection with the street gutters would conduct the surplus water into the waste pipes, allowing, by a simple apparatus, any quantity necessary to be discharged into the body of the sewer to purify and cleanse it. It is probable that the refuse water from the houses, being impure and unfit to be mixed with the useful waters of the Thames, would suffice for this purpose; if not, a regulated occasional supply might be furnished through the gutter traps, as stated above.

The first thing necessary would be to ascertain by experiment the quantity of water requisite, the volume of the discharge, and the time necessary for deodorisation. If the volume of the discharge were found to be inconveniently great owing to the quantity of water used as a mechanical agent, it would become necessary to adopt a more expensive but greatly improved modification of this plan. This would mainly consist in constructing in each of the sewers,—besides the waste-water pipe to carry off the street drainage,—a pipe of about two feet in diameter as the passage by which all the sewage matter might be discharged. These pipes could, in ordinary situations, be kept clear by the impure refuse water from the houses, and, under the most disadvantageous circumstances, atmospheric pressure could be applied mechanically to almost any extent.

The pipes, being air-tight, would allow no effluvia to escape; they might, even, be disinfected periodically with chloride of lime and other chemical agents. The present sewers would thus be converted into underground passages, or tunnels, easily inspected and kept in order, and through which might be conducted not only waste water and sewage pipes, but also gas-pipes, electrical tubes, fresh-water pipes, and other apparatus, for which the streets are now so frequently torn up, and over which the inspection is necessarily imperfect. There is no reason why these passages might not be made as accessible and as convenient as the Thames Tunnel, and it would be quite possible to keep them well lighted, ventilated, and dried by the aid of gas.

The collateral advantages of this scheme need hardly be pointed out. Water and gas, from the ease of inspection and the facility afforded in laying and repairing the pipes, might be distributed more cheaply and more universally. For the requirement of electrical and scientific apparatus some such arrangement is indispensable to secure accuracy and certainty in carrying it through the metropolis. The waste rain water would be available for public fountains, baths, and washhouses. Gas factories and similar establishments might be compelled to use pipes and tanks of their own in connection with these channels, by which they might safely remove or devote to some useful purpose the deleterious refuse, with which they now poison both water and air, rendering, in some cases, the very sewage matter itself noxious to both vegetable and animal life. Accidents in all these important departments might be obviated by facility of inspection, while repairs, improvements, and alterations might be operated without inconvenience to the public.

All these extensive operations conducing to public convenience and well being would be cheapened and improved, many scientific observations would be facilitated and demonstrated, another proof would be exhibited to the world that we are not retrograding—that we are not even satisfied to be only as our fathers have been—that in the race of improvement we will not yet yield the first place. London underground might indeed become, as it has been incorrectly stated to be, almost as great a wonder as the city above.

It is unnecessary to enter at present on any of the details connected with this plan. I would, however, point out the advantage to be derived from convict labour in a work of this kind. The great body of the labourers would be required in the tank-boats, in working at the construction of the terminal receptacles at low-water mark, and in quarrying at Portland and elsewhere the stone of which they would be built. These, being extraordinary employments, would not compete unfairly with free labour; being public works, would be most economically and fairly carried out by the labour of those who are supported at the public expense; and there would be a retributive justice in extracting from the public enemies a real and lasting benefit to the common weal. The convict labourers might be lodged in hulks anchored near the scene of their operations. Their occupations being at a distance from the thoroughfares, they could be kept apart from the public, making them useful in their own sphere, without contaminating others by their presence and society. While mixing with their fellow-men, they are the professors and teachers of crime; when detected, they are a burden and expense; and they are a source of serious embarrassment when convicted. To send them to a dépôt like Norfolk Island is to breed the most awful crimes arising from dissolute idleness, while even the worst malefactor may be reclaimed by finding him employment.

The experiment, of which I have merely traced an outline, might be tried, in the first instance, in one or two localities, till the necessary experience had been obtained of its working, so as to apply it with the greatest advantage to the sewage of the whole metropolis as a system. There is no doubt also that more rapid and perfect deodorisation may be used than is now in practice, and which would tend to facilitate the working of this plan.

On the same system every town and village of the United Kingdom may find an innoxious discharge for its impurities, and at the same time turn to account manure that is always so valuable, but which at this



time is indispensable to meet the demands of a higher class of farming than has been hitherto generally adopted.

The advantages of the proposed plan are, that the present sewers are maintained, that the sewage matter is saved, that the water of the Thames is not polluted, and that it admits of the experiment being made on a small scale and at small expense. No inflexible theory is proposed; no spot made to suffer, that London may escape; while it is applicable to every place and under every circumstance—to single houses, to villages, towns, cities, even to the great metropolis itself.

It may be objected that such works are on a scale unheard of elsewhere; but this is no refutation of their practicability. This is the age of unheard of plans, of daring schemes, and the realization of wild conceptions. Who, a few years since, would have listened patiently to the details of a scheme for throwing cast-iron tubes of vast capacity across the Menai Straits? When philosophers looked doubtful, and wise men shook their heads, and sneerers scoffed, who could have conceived that in so few years the wide Atlantic would be almost bridged with magnificent steamers, bearing rich freights and crowds of passengers from shore to shore in the space of a few days, and with a regularity that barely admits of the tempest and whirlwind being taken into the calculation? To "put a girle round the earth in twenty minutes" needs now no supernatural agency; a child may now in shorter space send the very lightning on his errand, bearing winged words beneath the vasty deep, through mountains and across boundless wastes!

In these days it should be our ambition to surpass what our forefathers have done, their limited experience and inferior mechanical knowledge not admitting of the same opportunities offered to us. Few of our public works, however, with the exception of our railways, equal in point of execution, of durability, and of public utility, the cloaca of old Rome, the subterranean reservoirs of Constantinople, and the aqueducts built by the Moors in Spain. Our railways are indeed glorious exceptions, and while they constitute so conspicuous an element of our wealth and strength, they suggest the thought that their value and their success are to be traced to the fact that they are for "the million," that every individual member of the commonwealth finds his advantage in them without reference to locality or class, or caste, or circumstances. These are the works in which the whole people are interested, vitally interested, affecting, as they do, the very air they breathe, the water for their daily use, and the light that adds so much to their safety and comfort.

TYRONE POWER.

#### THE BUILDING IN HYDE-PARK.

At the anniversary meeting of the Derby Mechanics' Institution, on the 8th inst., the Right Hon. Edward Strutt in the chair, Mr. Paxton gave a history of his design.\* He commenced by saying, that, gigantic as the building was, it was conceived and framed by him in a small space of time. He need not, however, remind them that it was not done without a great deal of forethought, aided by the experience he had in constructing other great buildings. When the six eminent architects and engineers were selected as a committee to choose a design, he had no intention of offering one, for he took for granted that something worthy of the occasion and of the nation would be selected by them. When the time approached for the production of plans, there was a discussion in the newspapers as to the design best adapted, and he must say that the first sketch he saw in a number of *THE BUILDER* did not inspire him with any very exalted notions, or raise any very splendid expectations of the result. It was not until one morning when he was present with his friend Mr. Ellis at an early sitting in the House of Commons that the idea of sending in a design occurred to him. A conversation took place between them with reference to the construction of the new House of Commons, in the course of which he (Mr. Paxton) observed, that he was afraid they would also commit a blunder in the building for the Industrial Exhibition; adding, that he had a notion in his head, and that, if Mr. Ellis would accompany him to the Board of Trade, he would ascertain whether it was too late to send in a design. He asked the executive committee whether they were so far committed to the plans as to be precluded from receiving another: the reply was, "Certainly not, the specifications will be out in a fortnight, but there is no reason why a clause should not be introduced allow-

ing of the reception of another design."\* He (Mr. P.) said, "Well, if you will introduce such a clause, I will go home, and in nine days hence I will bring you my plans all complete." No doubt, the executive thought him a conceited fellow, and that what he said was nearer akin to romance than to common sense. Well, this was on Friday, the 11th of June. From London he went to the Menai Straits, to see the third tube of the Britannia bridge placed, and on his return to Derby he had to attend to some business at the board room, during which, however, his whole mind was devoted to his project; and whilst the business proceeded he sketched his design on a large sheet of blotting-paper. He was sorry he had not the original with him, but the fact was, Mrs. Paxton had taken possession of it, and if they were at all anxious to see it, the only possible way of gratifying their desire was by sending for her to the meeting. Well, having sketched his design on blotting paper, he sat up all night until he had worked it out to his own satisfaction; and by the aid of his friend Mr. Barlow on the 15th, he was enabled to complete the whole of the plans by the Saturday following, on which day he left Rowsley for London. On arriving at the Derby station he met Mr. Robert Stephenson, a member of the building committee, who was also on his way to the metropolis. Mr. Stephenson minutely examined the plans, and became thoroughly engrossed with them, until at length he exclaimed that the design was just the thing, and he only wished it had been submitted to the committee in time. Mr. Stephenson, however, laid the plans before the committee, and at first the idea was rather pooh-poohed; but his plans gradually grew in favour, and by publishing the design in the *Illustrated News*, and showing the advantage of such an erection over one composed of 15 millions of bricks and other materials, which would have to be removed at a great loss, the committee did in the end reject the abortion of a child of their own, and unanimously recommend his bantling. He was bound to say that he had been treated by the committee with great fairness. Mr. Brunel, the author of the great dome he believed, was at first so wedded to his own plan, that he would hardly look at his. Mr. Brunel was, however, a man of fairness, and listened with every attention to all that could be urged in favour of his (Mr. Paxton's) plans. As an instance, some dimensions being wanted, Mr. Brunel called at Devonshire House and gave him the measurement of the trees, which he had taken early that morning; adding, "Although I mean to try to win with my own plan, I will give you all the information I can." After giving the particulars of the building, with which our readers are acquainted, the speaker adverted to the uses to which such sort of buildings may be applied. He said the exceeding cheapness of iron and glass will give an impetus to the erection of similar buildings, though perhaps on a smaller scale; for there is hardly any purposes of ordinary covering to which the same plan may not be adapted with advantage. He had already been consulted by various parties—by Yorkshire manufacturers as well as other persons—with reference to the application of the principle in covering large spaces. Mr. Batty, the equestrian, of London, wished him to design him a circus to be erected near the park during the exhibition, and a friend had suggested what to him appeared an excellent idea, namely, the covering over of Shakespeare's birthplace at Stratford, to protect it from decay.

**ACOUSTICS.**—In connection with the interesting article on acoustics, in No. 396, allow me to refer your correspondent to a passage in the life of Sir Christopher Wren (fol. London, 1750, p. 320). In speaking of the proper dimensions of a church, where the greatest number of persons might see and hear distinctly, Sir Christopher states, "that a moderate voice may be heard 50 feet before the preacher, 30 feet on each side, and 20 feet behind the pulpit." The proportions, therefore, which he recommends are 60 feet wide and 90 feet long, with porch and chancel. On this plan St. James's Church, Westminster, was erected.—A.

\* The clause introduced did not, in truth, provide for the reception of a fresh design. We never think of this competition, &c. without a blush.—Ed.

#### THE "EUSTON PAVEMENT."

WHAT is advertised in our columns as the "Euston Pavement," originated in an experiment in road making, tried at Birmingham in 1838, and a repetition of it at the departure side of the Euston station of the London and North-Western Railway about seven years ago. In both cases it is said to have been very successful.

The manner in which this paving is laid may be simply described. The ground is first removed to the depth of 16 inches below the intended level of the pavement, the foundation being shaped to the convexity of the intended surface of the road: a layer of strong gravel, 4 inches thick, is then spread over the surface, and compressed, by being rammed equally throughout; after which, another layer of 4 inches of gravel, mixed with a small quantity of chalk, or hoggin, is laid on, for the purpose of giving elasticity to the bed, the ramming being continued as before. This is followed by the last layer, also 4 inches thick, of the same material, but of a finer quality, when the whole mass is compressed by the rammer into the smallest possible space. Thus the surface of the foundation is perfect, both in shape and solidity, in all its parts, and is ready to receive the pavement. The stones used are of Mount Sorrel granite, from 3 to 4 inches deep, 3 inches wide, and averaging 4 inches in length, neatly dressed and squared. These stones are laid in a bed of fine sand, 1 inch in depth, spread over the surface, and are carefully and closely jointed in the laying, so as not to allow any single stone to rock in its bed. The rammer is then applied over the whole, each stone receiving its blow in rotation, and this is repeated again and again, until no further impression can possibly be made upon it.

As to cost, the patentee says,—“The usual practice in the old system has been for the contractor, in repaving a street, merely to lift the existing surface and to substitute new stone in place of the old. The minimum cost of this replacing is fifteen shillings per superficial yard, to which must be added three shillings per yard, for the value of the old stone claimed by the contractor, and which will make the clear cost of the large pavement eighteen shillings per superficial yard. The maximum cost of the Euston pavement is twelve shillings per superficial yard, including the foundation; and after deducting three shillings per yard, the value of the old stone, not claimed by the contractor, the net cost will be nine shillings per superficial square yard, or about half the minimum cost of the large pavement.”

This system was brought under the notice of the Institution of Civil Engineers in February last, when several strong witnesses spoke in its favour.

#### EXPRESSION IN BUILDINGS DEPENDANT ON WINDOWS.

I HAVE read with great interest the valuable remarks of S. H. on the treatment of windows in modern English buildings, showing how much the beauty of every English building, of whatever style, depends on its windows. A few observations will tend to show the truth of this principle.

Besides the general shape and proportion of a building, there is necessary, in order to make it really beautiful, expression; or, as we might almost say, life. Now I conceive this expression is obtained chiefly, if not altogether, by the contrasts of light and shade; broad lights, changing with the changes of sunshine and cloud; deep, fixed shades.

Under a bright, burning sun, high above the head, and a blue, cloudless sky, this effect is sufficiently obtained by a row of pillars a few feet in front of a plain, unbroken wall. The shade of the narrow line of roof above would, in that climate, produce a deep, fixed shade, while the sunlight, resting on the rounded pillars in front, would produce all the contrast desired to please the eye, and give expression to the whole. The effect here is produced by an actual shadow.

But in our northern climate, we cannot depend upon shadows for any striking effect. In the first place, there are not many days in

\* Reported in full in *Daily News*.



the year when the sun does actually shine fully, and when it does it is not the bright warm sunshine of the south; and besides, being so much lower, its rays come in a slanting direction, and so do not produce the same depth of shade. So that altogether this mode of producing expression is not applicable in England.

How, then, are we to get the shade necessary for effect? Why, in a very simple way, by cutting right through the wall into the interior. The light will then rest on the walls, and the opening will form a piece of deep, fixed shade, dark enough to give expression and effect to the building. And as these holes are necessary to every building in England, we have all the means required for expression at our command.

Windows, doors, chimneys, and ventilators seem to be all the holes necessary; but the ventilators are so very small, chimneys almost always open at the top, and doors are generally shut, and require to be made of a material which allows the light to rest upon it, so that we are forced to depend upon the windows for our light and shade. I hope this is sufficient to show that your writer has not in the least overrated the importance of windows as giving expression to English buildings. It would be well, therefore, if builders of houses, &c., were to study more beauty in windows—if they were to try and make these holes into the interior darkness of the rooms more beautiful in shape, and grouped together in a picturesque, but not fanciful way. They should make the shape, and size, and position of the windows in some way suitable to the room they are to light, and, if possible, by their arrangement to indicate the use of the room. This would give a life and meaning to the outside of houses, instead of that monotonous uniform appearance which they now present. Above all, sham windows should be avoided; they are not in themselves ornamental in any respect, unless the shape happen to be beautiful; but even then they are quite ineffectual, because the thinness of our walls will not allow them to be cut through to a depth sufficient to cause any shade at all. If the builder has left a large piece of wall unpierced by windows, and he cannot ornament it with black or coloured bricks in patterns, or in some other way, it would be better to leave it plain. It is indeed a most important principle that your writer has enunciated, that it is mainly upon their windows that English edifices must depend for their expression. R.

#### NOTES IN THE PROVINCES.

THE contract for reclaiming the Norfolk Estuary has been taken by Messrs. Peto and Bett, under direction of the engineers-in-chief, Sir John Rennie and Mr. Stephenson. The objects are, improvement of drainage and navigation, and acquisition of land. The Bedford Level and adjacent lowlands, comprising nearly half a million of acres, will be drained by this work. The proprietors have contributed 60,000*l.*, and the corporation of Lynn a like sum. The ultimate object of the company is to reclaim from the sea a tract of land amounting to about 32,000 acres.—The new bridge at Sutton being brought into use, the old one is in course of removal.—On Wednesday week the newly-erected National Schools at Towcester, comprising a boys', girls', and infants' schools, were opened. They are in the Early English style, corresponding with the church, near which they are situated, and cost about 1,500*l.*, raised by subscription, &c.—The Brighton Breakwater committee have had an interview with the directors of the London and Brighton Railway, relative to the proposed breakwater off Brighton; and the company are said to be entirely favourable to the project.—A gas company is about to be formed at Ventnor, Isle of Wight.—The inhabitants of Lynton have resolved to take measures to ensure a reduction in the price charged them for gas, namely, 9*s.*, "which is considered exorbitant when compared with other towns, having an equal facility with them in obtaining coals."—Plans for a market at Clifton are about to be decided on.—Final arrangements are being made for bringing the plan for fountains at Bath before the public. The drawing of a fountain intended to be attached

to the obelisk in the Grove, and another for the centre of the garden of the Literary Institution, are nearly completed.—St. Peter's Church (or Eldad Chapel), Plymouth, was consecrated on Saturday in the week before last, after being altered in the interior, as suggested by the Rev. Mr. Prynne, the incumbent.—A new Vegetable Market has been opened in the Shambles at Worcester. The walls are of brick: the roof is open, with iron frame principals, surmounted by a lantern. The building is 86 feet by 30 feet, and has two entrances, one from the High-street and the other from the Shambles. There are twenty-two stalls and six store-rooms. The estimated cost of the whole is something under 500*l.* The architects are Messrs. Rowe and Son, of Copenhagen-street, Worcester. A proposition to erect public baths in this city, says the *Worcester Journal*, has been brought before the town-council, and favourably received. It appears that, without any outlay of public money, Mr. Barber, of Cheltenham, has conceived a project to erect baths by subscription near the Water-works.

—The form that seems to be desired by all classes at Worcester for their Peel monument is that of a free-hall with a public library.—A stained-glass window has been executed by Messrs. Pemberton, of New-hall Hill, Birmingham, for Claverley Church. It consists of three compartments; the ground of the centre one a brilliant crimson, and that of the side ones purple. The cost has been defrayed by subscription.—Three new windows have recently been erected in St. Ives Church, in the room of three churchwardens' windows of the last century. That at the east end of the Trenwith Chapel, and those in the north and south aisles, have been restored. All the churchwardens' windows have been removed, and pointed ones substituted, with the exception of the altar window, which is shortly to be restored and filled with stained glass.

—The Pedlars'-market, at Liverpool is being pulled down by Mr. S. Holmes, and the thoroughfare is to be widened in the erection of shops on the site.—The new post-office at Sheffield is now occupied by the officials. The building is said to be not very ornamental. It has been erected at the sole expense of the Duke of Norfolk.—The price of gas supplied by the Leeds New Gas Company is to be reduced, in December next, from 5*s.* to 4*s.* 6*d.* with the present scale of discount.—A new chimney just completed in Hunslet-road, Leeds, has been blown down during a storm of wind and rain: it was 50 yards high, and the mortar was still in a green state, having only been a week laid.—Negotiations are in progress for a site adjoining the Court-house at Bradford, on which to erect the proposed music-hall there.—"The Harrogate Gas Company and the Improvement Commissioners," says the *Bradford Observer*, "having differed respecting the price of gas, the town is again in darkness. The commissioners have offered 7*s.* but the company 'won't light up' under 8*s.* Private consumers are charged the extravagant price of 8*s.* 4*d.* but unless reduced, many of the most affluent innkeepers, &c. are about to fit up gasometers of their own, and leave monopoly to shift for itself. In Knaresborough the price is 7*s.* 6*d.* but the principal consumers are about to strike for a reduction."—The visiting justices of York Castle have obtained plans and estimates for rendering this prison fit for the separate confinement of prisoners before trial, which plans have been approved of by the Government authorities, and are to be submitted to the magistrates of the three ridings. The proposed outlay is not to exceed 3,000*l.*, "thereby," says a Yorkshire paper, "the county will be spared an endless and ruinous outlay in the construction of new prisons, court-houses, &c."—The Hull work-house, with its site, are about to be sold by tender. "The above," says the announcement, "offers a rare opportunity for the erection of an Exchange and news-room, town-hall, police-court and station, corn market, brokers' and mercantile offices, bank, arcade, or any other public or private buildings in the town of Hull."—The Grimsby Gas Company have ordered a reduction in the price of gas from 7*s.* 6*d.* to 6*s.* 8*d.* "This," says the *Lincolnshire Times*, "will prove an opportune and wise movement; but it may be submitted whether, in the course

of a short period, it would not prove more beneficial to the company to make a further reduction to 5*s.* There is a very considerably increased consumption, which ought to induce them to act liberally towards the public."—A plan of Sunderland is about to be published from a trigonometrical survey by Mr. Thomas Meik, engineer to the River Wear Commissioners, and Mr. R. Morgan, C.E.—The motion in the Newcastle town-council for the erection of additional baths and washhouses has been carried.—A tenement obstructing the thoroughfare near George the Fourth's bridge at Bristo-port, Edinburgh, is about to be removed.—A new harbour has just been completed at Greenock, and named the Victoria Harbour. The foundation-stone of the Wood Asylum has been laid within the last week in the same town.

#### RIVAL GAS COMPANIES.

Mr. Tyrrell, the City Gas Company's solicitor, has issued a pamphlet, in form of a letter to the citizens, in answer to an address of the Great Central Gas Consumers' Company, in which he says, "The more immediate object of my present address is to deny the charge of my having threatened to undersell you, who are so often spoken of as though you were the Great Central Gas Consumers' Company. \* \* \* I deny that I ever threatened to undersell even this unfortunate (?) company, though I did state, that as an inevitable consequence of the contest, the intruding company must be undersold by the old companies, who could not, from the nature of their property, remove it, and would not abandon it to make room for an unscrupulous competitor; and that, therefore, to secure the remnant, they must compete, by reduced prices, notwithstanding they had already lowered their rate of charge from 6*s.* to 4*s.*, under the same feeling as the victim of a highway robbery surrenders his purse to save his life." Slanderous inventions will do no essential good to any cause, and ought, on all hands, to be reprobated. We only wish Mr. Tyrrell himself had not diminished the force of his denial by an undercurrent of injurious implications, such as runs throughout his own address, and even appears more than once in the brief quotation from it which we have just given. Competition such as that in question, is undoubtedly wasteful and injurious, even to the public interests, wherever existing companies can and do supply the public with a sufficiency of the best article at the lowest possible price without such competition. But when it is only by means of it that they are tardily compelled to do what otherwise they certainly would not have done, who is it that is really to blame, not only for the wasteful competition itself, but even for all the strife and squabbling, heart-burnings, malignity, and slander to which the necessity for such competition with powerful companies will inevitably give rise? Had the old establishments only met the reiterated requests of the citizens in time (as we ourselves often warned them they had better do), by making those reductions which they have been compelled to make when too late, no such competition, no such waste of money, no such criminations and recriminations would have ever taken place. But, however little to be desired such competition, abstractly speaking, may in reality be, it is going rather too far to compare a rival competitor, as such, even by implication, to an unscrupulous highway robber, however unfortunate in his calling.—The Great Central Gas Consumers' Company have had an electric telegraph laid down between their chief office in Moorgate-street and their works at Bow.—A new return, ordered by the Commons on Mr. Hume's motion, has been obtained from the gas companies throughout the country, and a copy of it has been laid before us, to which we shall hereafter refer: meantime we may merely state that by comparison with the last it appears *ex facie* to be a decided improvement, inasmuch as it contains the column of capital paid up, the want of which rendered the last, as we pointed out, a perfect nullity, so far as regarded the actual profits of the companies. The multitude of reductions in price since last return is an interesting feature, to which we can only now allude in general terms.

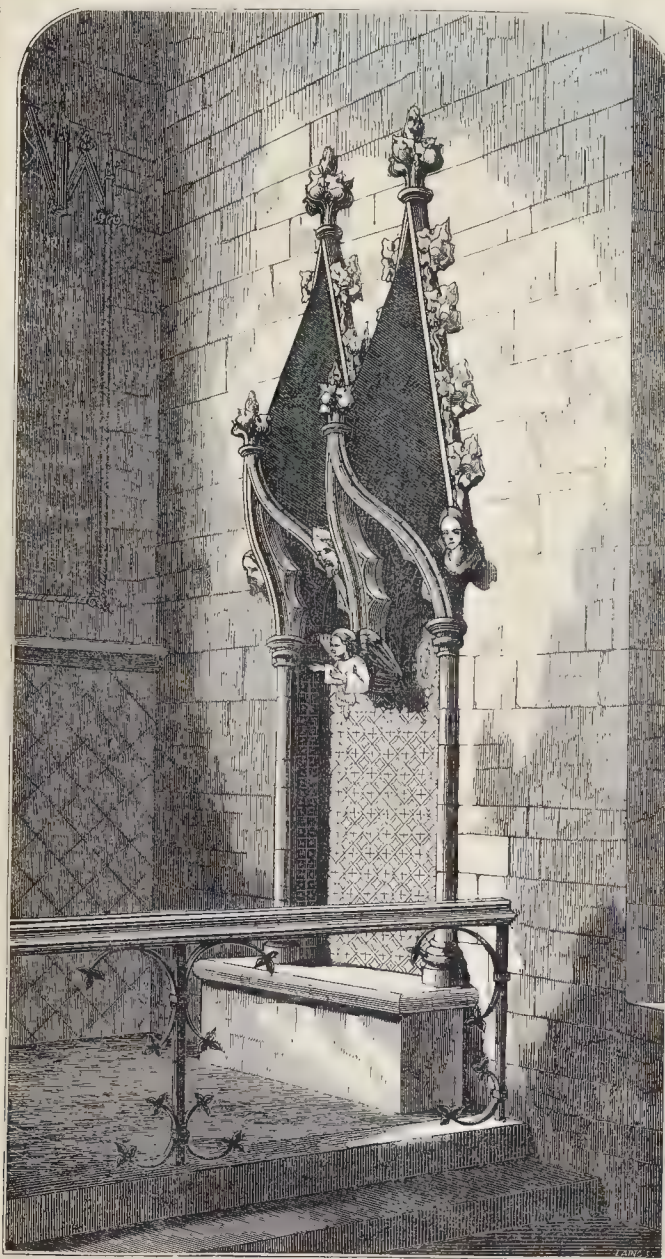


INTERIOR OF ST. MARY'S, WEST BROMPTON.  
GEORGE GODWIN, F.R.S., ARCHITECT.





## CARVED SEDILIA, ST. MARY'S, WEST BROMPTON.



## ST. MARY'S, WEST BROMPTON.

St. Mary's Church, West Brompton, to be consecrated on Tuesday, 22nd inst., by the Right Rev. Charles James, Lord Bishop of London, who has probably performed that office more often than any previous bishop, is built from the designs, and under the direction, of Mr. Godwin, on an estate belonging to Robert Gunter, Esq., situated between the Fulham-road and the Old Brompton-road, in the parish of Kensington. It is an offshoot of the Brompton District Church, whereof the Rev. W. J. Irons is the incumbent; and has been erected by funds raised, in small part, by subscription, and from the Church Commis-

sioners, but mainly provided by the Rev. Hogarth J. Swale, the perpetual curate. In a previous volume we gave an external view of the building,\* which showed that it was a cross church (this form was prescribed to the architect), without aisles, with a bell-cot at the west end,† and an octagon lantern and spire at the junction of transept, intended to be open to the church. The design has been carried out with the exception of the lantern and spire, which are postponed for a short period. The square tower is taken up its proper height, with squinches in the angles, from which the

\* Vol. VII. page 282.

† The bell-cot was shown to be in two stories, but in execution was confined to one.

octagon lantern will rise, and has a high pyramidal temporary roof, with metal cross and vane.

Annexed is a view of the interior of the church, looking west, and showing the entrance to north transept. The nave is 86 feet long within the walls, 33 feet wide, and 46 feet high to ridge; the side walls are 22 feet high to wall-plate. The tower is 17 feet square inside, and the thickness of the moulded stone arches which carry it is 4 feet. The transept is 81 feet from north to south; 20 feet 6 inches wide; 38 feet high; and has a large traceried window at each end. The available area in each arm of the transept is 28 feet by 20 feet 6 inches in width; and this is also the size of the chancel. The transept was designed by the architect to be shorter, but was extended to meet a greater demand for accommodation than was at first anticipated. The north transept will be mainly occupied by the organ, built by Mr. Bishop, which is at the north end of it, and by the choir. The walls are of stone throughout: externally of Kentish Rag, with Bath stone dressings;\* and internally of Hassock. The roofs are all open, with the exception of that of chancel, which is boarded, in panels, with carved bosses at the intersections. The corbels which receive the arch-ribs of the nave roof present carved figures of the twelve apostles.

The walls are rendered with lias, not jointed, though accidentally so represented in the engraving. The nave and transept are paved with black, red, and buff tiles in patterns; the chancel with encaustic tiles by Minton. The chancel has two canopied sedilia on the south side, (of which we give an engraving), exceedingly well carved by Swales and Bolton. A small niche on the other side, the shelf of which is carried by a carved angel, serves as the credence-table. There are two rows of seats on each side of the chancel with open traceried fronts of oak; the seats throughout, with ornamental ends, are of deal, stained and varnished. The various doors are of oak, with wrought-iron hinges by Potter, who also executed the branches for gas, and the ornamental iron-work throughout. The font, which stands at the west end, on a step, opposite the south door, and the pulpit, are of Caen stone. The prayers will be read from a carved oak movable desk, facing north and west, not shown in the engraving.

The coloured decorations, necessarily limited at present, are confined mainly to the east end, and comprise the Lord's Prayer and Belief illuminated under painted canopies on each side of the east window; the Commandments under similar canopies on the east wall of the nave (on either side of the arch); a rich diaper, red and gold,† under east window, forming reredos of altar; and a diaper at back of sedilia, with the pelican and *Agnus Dei*; the whole exceedingly well done by Mr. W. H. Rogers. On a screen at the west end are emblazoned on six panels the royal arms, with those of Mr. Swale and Mr. Gunter (the donor of the site, and in other respects a munificent contributor); and the arms of the bishop, with, on either side, those of Mr. Irons and the rector of Kensington, the Venerable Archdeacon Sinclair.

The south window of chancel is filled with Messrs. Powell's quarries (a good specimen), the gift of the architect; and two windows on the south side of nave are filled with stained glass, as memorial windows, also by Powell. The east window will hereafter have stained glass by Hardman. The tracery of north transept window is filled with stained glass by O'Connor.

The general contract for the nave was first undertaken by Mr. Barr, but was afterwards taken up and completed by Mr. Glenn in a very satisfactory manner. The church will accommodate 750 persons, and the total cost, exclusive of spire, will be 6,000l.

Notwithstanding the form of the church and the length of the nave, it promises to be successful in point of sound: more so than the architect had a right to expect. Should it prove so when filled, we shall perhaps be excused for reverting to the subject.

\* The parapet and carved cornice, externally, are of Caen stone.

† I. H. C., lily and cross alternately.



## THE PEEL STATUE FOR MANCHESTER.

When the conductor of this journal was in Manchester, a short time ago, some of the authorities did him the favour to consult him as to the best course to be pursued to obtain a statue of Sir Robert Peel worthy of the country. He ventured to recommend a limited competition of leading sculptors, with such provisions to insure an equitable decision as should satisfy the artists that their time would not be thrown away. He also urged that something more should be sought in a statue for such a purpose than a mere coat-and-trowsers portrait.

We are glad to learn that it is determined that this course shall be adopted.

According to the local *Spectator*, the committee, after much inquiry and deliberation, have selected a limited number of the most eminent sculptors to compete for the erection of the intended monument. To each of these a communication has been made by the mayor, on behalf of the committee, stating the terms on which the competition is invited. These are briefly the following:—Three thousand guineas to be given to the artist selected for the statue. The pedestal, which is to be of granite, to be erected at the expense of the committee, and under the superintendence and direction of the sculptor. Each competitor to transmit, on or before the 1st January next, a model of a statue and pedestal. The model statue to be not less than two feet, or more than two feet six inches, in height. The characteristic costume of the present age to be maintained as far as is consistent with high art; but that any accessory which cannot detract from the importance of the figure itself shall be allowed. Each model to have a motto attached, and to be accompanied with a sealed envelope, containing the name and residence of the contributing sculptor. These are to be transmitted to such member of the committee as may hereafter be appointed for the purpose. The sum of fifty guineas is to be given to each of the unsuccessful competitors.

## PROPOSED JUNCTION OF ARCHÆOLOGICAL ASSOCIATION AND ARCHÆOLOGICAL INSTITUTE.

The council of the Archæological Association have published a statement of the proceedings taken in consequence of the resolution passed at Manchester, and a *résumé* of a correspondence between Mr. Heywood, M.P., on the part of the Association, and Lord Northampton, which fully proves that they faithfully carried out the request of the meeting to take steps to effect a junction with the Institute, and that the refusal rests wholly with the latter body.

To remove erroneous opinions which seemed to be entertained with regard to the position of the Association, a letter (by Mr. Planché) was addressed to Lord Northampton, containing the following passages:—

"Your lordship does not seem to be aware that the resolution passed at Manchester, which gave rise to that advertisement, did not originate with the Association, but with gentlemen entirely unconnected with it, encouraged by the frequently expressed desire of many eminent members of the Institute itself (one of whom was actually the seconder of the resolution), and in the belief that a junction was earnestly desired by a large majority of that body.

With such an understanding, therefore, the members of the Association present at the congress, agreed that the motion of Mr. Crossley and the Rev. Mr. Corser should be carried unanimously, in order that no difficulty whatever should be thrown in the way of healing the unhappy differences which had so long existed between the societies, or it might more justly be said, between certain members of them.

It must surely have been obvious to every one that such a desirable consummation was only to be arrived at by the dissolution of both societies: and their re-establishment as one and the same body under the original or an entirely new title—in fact, as if no separation had ever taken place; not by the mere admission of members of the Association into the Institute, or the entire sacrifice of one body to aggrandise the other.

The Council request your lordship distinctly to understand that they foresaw from the first the inferences which would be drawn from this proposition for a union, and therefore would have respectfully declined taking the initiative, had they not felt the Association was strong enough to enable

them to do so. When, therefore, your lordship hints at the probable dissolution of the Association, it appears to the council, that the consciousness of power and progress which justified them in offering an alliance has been misinterpreted as they anticipated, and considered an acknowledgment of weakness, which compelled surrender. It is in no boastful spirit, therefore, but simply with the desire to set your lordship perfectly right on that point, that the council beg me to inform your lordship that the Association was never in less danger of dissolution than at the present moment; that the increase of members during the past year has exceeded that of any former year, and includes several valuable members of the Institute; that it numbers eighty-two Fellows of the Society of Antiquaries; and, what is perhaps the strongest guarantee of its success and stability, that it has no debt it cannot discharge—a fact as honourable to its management as it is encouraging to its supporters.

Under such circumstances it would be, as far as pecuniary interests are concerned, as inexpedient for the Association to change its existing regulations as for the Institute, and nothing but the laudable desire to be the first to forget and forgive, could have induced the council to have listened for a moment to the recommendation urged upon them."

## THEATRES AND SCENERY.

*Theatre Royal, Haymarket.*—We are often astonished by what theatrical decorators and workmen can do in a few days, although we have had some experience in it too. About twelve days ago the Haymarket was occupied by the Adelphi Company, and on Monday night it opened with smartened lobbies and staircases, renovated boxes, and a new royal box, with ante-room and approach, very cleverly and elegantly fitted up. The former box was very inconvenient, being situated on the level of the second tier, and could only be reached by ascending about sixteen steps. Her Majesty, it seems, expressed a desire to have certain alterations made for her comfort, and, indeed, would have relinquished her box if these had not been done. The royal entrance is now, as before, by the principal door in Suffolk-street. The passage is level, the walls on either side are draped with damask, and the light proceeds from two cut-glass chandeliers: at the extremity is a door of looking-glass, reflecting the perspective of the entrance. This affords admission to an ante-room, 24 feet by 11 feet, to which it has been sought to give a larger appearance, by rounding off all the corners and coving the ceiling, so that the eye is carried onward without any angle to arrest it. The decorations consist of light Pompeian pilasters, forming panels all around, supporting and enlaced by wreaths of flowers and foliage, which trail over mirrors placed to reflect the decorations, and wander up into the ceiling, which is pale blue, clouded, and in which birds are depicted. Each panel contains a view of some scene familiar to her Majesty—Windsor Castle, Osborne House, Balmoral, the residence of Prince Albert when in Germany;—and a flat mantelpiece of white marble, neatly carved by Mr. Thomas, and Jobson's quaint-looking stove, with green and gold furniture, complete a very pretty room. The ceiling of the box has an oval wreath of flowers occupying the centre. The decorations have been executed by Mr. Sang and his assistants, under the direction of Mr. C. Manby.

*Royal Lyceum Theatre.*—A clever bustling piece, called *Serve Him Right*, with which this theatre opened on the 15th inst., introduces a built-up scene of great merit: it presents a suburban villa, with its projecting verandah, the garden walls and a green-house; and, like the acting in the piece, is singularly complete and effective. In another new piece here, called *My Heart's Idol* (equally successful), the garden scene in the first act is worth notice: the gravelled walks, turfed borders, balustraded terrace, amount almost to deception. The second act opens with an effective *Ostendish tableau*, which was not sufficiently appreciated by the house.

*Her Majesty's Theatre.*—We have already mentioned the structural alterations made here for the promenade concerts. The house has been draped with pink calico covered with figured white net, if such a word as draped can be applied to the ugly scallops which edge the various tiers of boxes, as flat and stiff as if cut out of board; with equally stiff round bows of green ribbon and tinsel at the junctions: the whole unworthy of a four-post bed. Its only

merit is the preservation of an air of great lightness throughout the house. The stage covering and inclosure, white and cherry colour, is, like the musical arrangements, a mere reflection of those at Drury-lane. The insignia of her Majesty, Prince Albert, and the Prince of Wales, form singularly ugly spots.

## NEW LAW AS TO DRAINAGE OF HOUSES IN METROPOLIS.

The Metropolitan Sewers Commission held a special General Court on Tuesday last, at which it was resolved, after some discussion, to accept and present for confirmation to a Court of ten commissioners, on 6th December next, a set of bye-laws regulating the drainage of houses to be built or rebuilt, or already built but not yet occupied. The propositions were moved by Mr. E. Lawes. One was to render it compulsory on the public to send to the office of the commission plans of the drainage of any house about to be built, in course of construction, or not already occupied. The Court was empowered to enforce a penalty of 5*l.* and 4*s.* per diem in case of default. The second proposition was to compel the district surveyor, under the Buildings Act, to send to the Court weekly returns of the notices received by him under the Buildings Act, and these returns the commissioners had power to enforce under the 47th section of the Metropolitan Sewers Act, 11th and 12th Vict. c. 112. These two propositions, taken together, would be the means of furnishing the commission with such information as would be requisite to enable them to enforce their improved regulations respecting house drainage. In conjunction with this course, it was proposed that the surveyor of the commission should address the owners and occupiers of property who failed to send in these returns as required, requiring them to send such returns, and informing them of the penalties to which they exposed themselves under the Act of the commission as well as under the Nuisances Act. Fourteen days' notice, according to the first bye-law, must be given previous to the construction of houses to be built, and one month's notice in respect to the drainage of houses at present in course of construction or completed after confirmation of the bye-law but not already inhabited. At the same meeting a report by Mr. Forster, on the drainage of Holloway, &c., was read, and the construction of various sewers ordered. In respect to the drainage of private property, Mr. Peto said that the drainage of Church-street and Carrier-street, St. Giles's, was in course of execution. The cost of these works was levied on the property itself, and he wished the fact to become generally known that the commission was determined, that having once decided on the general system of the arterial drainage of London, they would turn their attention, as even now it was their duty to do, to those districts where private property was insufficiently drained; and in cases where drainage was not properly carried out they would, in default of the execution of the necessary works by the owners, drain them, and the whole cost would be levied upon such property. This was a fact which could not be sufficiently promulgated amongst persons owning house property.

## Books.

*Remarks on the Architecture of Llandaff Cathedral, with an Essay towards a History of the Fabric.* By E. A. Freeman, M.A. London: Pickering. Tenby: Mason. 1850. Some remarks on Llandaff Cathedral, made by Mr. Freeman at a meeting of the Cambrian Archæological Association, have grown into a small volume, nicely printed and illustrated, which, besides containing a historical and descriptive account of that singular structure, will serve to call attention to the disgraceful state into which it has fallen, and the efforts now being made to restore it. The building consists of a long unbroken body, comprising, under an uninterrupted roof, nave, choir, and presbytery, with a Lady Chapel at the east end, of lower elevation. Low towers terminate the aisles at the west end. As Mr. Freeman observes—

"All this is widely different from the ordinary design of an English cathedral. The first and most marked peculiarity is the absence, in a church of so



great a size, not only of a central tower, the usual crown of our large churches, but of transepts in any form. In this respect it is unique among the cathedrals of South Britain, and has but few parallels among churches of equal size, even when not designed as episcopal sees, as the present Cathedral of Manchester, Dorchester Abbey, Boston, and St. Michael's, Coventry. And even among these, the distinction of the several parts of the church is generally more strongly marked than at Llandaff, where there is no constructive difference whatever between nave and choir, the only perceptible external change in the main body of the fabric being between the choir and the presbytery, and that consisting only in the different arrangements of the clerestory."

The condition into which the building has fallen is melancholy:—

"The main body of the fabric, as seen at present, appears one mass of hopeless confusion; the hideous structure of the last century which acts as the choir rising in strange contrast to the venerable ruins to the west of it. This latter portion of the church is not simply unroofed, but both the external walls and the arcades are very much mutilated. The former, by dint of patching, present a continuous circuit, though not to their full height: within the piers and arches are perfect, except the arches nearest to the present west front (1), which have been apparently mutilated to make way for that precious monument of the taste of a century back. Of the clerestory only a small fragment remains in a single bay, but fortunately enough to reconstruct its design."

Mr. Prichard is the architect engaged upon the work of restoration, which is gradually advancing from the East end. The Lady Chapel is completed, and is the part now used for service. The writer objects to the low roof which has been put upon it.

The description of roof with which the nave was originally covered is amongst the doubtful points. Mr. Freeman says:—

"There can be little doubt but that this part of the cathedral was originally intended to be covered by a flat ceiling, a feature more common in Romanesque and early Gothic churches than is usually supposed. This is shown by the roof-shafts, which are continued up to the summit of the masonry, instead of being terminated much lower down, as they must have done had vaulting of the ordinary kind been intended. And that these shafts were designed to carry a flat ceiling, and not an open or canted timber roof, or a barrel vault, appears from the internal view of the west end, where the ledge for the ceiling to rest upon is distinctly visible, and while the masonry below is of ashlar, that above, which would have been concealed by the ceiling, is of rubble. This arrangement we cannot conceive co-existing with any other form of internal covering."

We should require some stronger evidence of this than we find in Mr. Freeman's pages before we could assent to the proposition.

### Miscellaneous.

**STATUE OF WALLACE.**—The Edinburgh City Council have unanimously agreed to refer a request by Mr. Patric Park for an area in which to exhibit his model of Wallace, to the treasurer's committee, with powers. The main purpose of the exhibition is to form the nucleus of a national fund for a monument to the Scottish hero. Mr. Hill, in seconding the motion for leave, said that "those who had visited the artist's studio must have been impressed with the simplicity and grandeur of the design. It was a work of great power, and a fitting tribute to the memory of that hero who struggled for their nation's independence, and whose warlike expeditions formed the romance of their earliest associations. The colossal figure stood, without its pedestal, fifteen feet high, and from nine to ten tons of clay had been used in its erection, every particle of which had been carried to its position by the artist himself. Mr. Park had now the satisfaction of seeing his model completed, and the additional satisfaction of having obtained a ready response from the public in the shape of subscriptions for its preservation, and it now remained for the Council to do what lay in their power to enable him to carry out his design in the erection of a statue in more durable materials than clay and plaster." Sir William Wallace appears to be a subject of general interest in Scotland at the present moment, and doubtless the object in view will be greatly promoted by the exhibition. A Scottish contemporary, by the way, points out

Mr. Baillie Cochrane, M.P., as the chief representative of the family of Wallace, a circumstance which reminds us that we meant to have stated, in speaking of Miss Wallace's new inventions in decorative glass, that this lady is said to be a lineal descendant from Sir William's family.

**PROGRESS OF ST. GEORGE'S HALL, LIVERPOOL.**—The interior of this building is at length so far advanced towards completion as to enable a visitor to form something like an adequate idea of its effect and proportions when finished. The bulk of the heavy work throughout is already nearly done; and the decorations, plastering, &c., are being rapidly proceeded with. The *Liverpool Standard* (from which we take the following particulars) says that "from its horse-shoe shape, and the arched form of the roof, we feel satisfied that its acoustic properties will be excelled by no building in the country devoted to musical performances." If these be the only grounds for the opinion, we must interpolate, it is worth nothing. The space underneath the Concert-hall is devoted to the Nisi Prius Court, which is rapidly progressing. We fear it will be found that proper amplitude of dimensions has been sacrificed by giving too great space for barristers' rooms, magistrates' rooms, &c. The polished grey granite pillars, upon which the roof is made to rest, have a beautiful appearance. The Crown Court, which is situated at the Haymarket end of the building, is even further advanced towards completion than the Nisi Prius Court, most of the interior scaffolding being now removed, thus affording a good view of the elaborate interior decorations. The capaciousness of St. George's Hall may be estimated when we state that the height from the flooring to the ceiling, which is being decorated with carved work in plaster, is 95 feet, whilst the length is no less than 169 feet. The massy pillars of polished red granite by which it is surrounded, contrasted with the lines and fretwork of the ceiling above, says our authority, impart to the hall a character of solidity combined with grace.

**MANAGEMENT OF COMPETITIONS.**—As one interested in this question, I am delighted to see in a late number the architects of Bristol exerting themselves to amend the system so long complained of. Mr. Fripp invites your readers to make their comments on the code of propositions issued by the society he represents. May I be permitted to object to proposition No. 3, which defers the final settlement of a competition till the completion of the contract drawings, specification, and quantities, and the delivery of the builders' tenders. It seems to myself that the latter part of proposition No. 8 provides every reasonable bar to the reception of the deceptive estimates of competitors; and that proposition No. 3, as now worded, can only tend to establish an abuse lately too prevalent—that of competing architects be-dusting the eyes of the adjudicators with the low-priced hap-hazard tender of some favourite builder—a document which, to say nothing of the impossibility of fairly preparing it from a mere competition design, is really out of place in an architectural competition.—Y.

**SURVEY OF BIRMINGHAM.**—The new survey of the town of Birmingham will be executed upon a trigonometrical basis, the triangulation for which has already commenced. Two plans will be prepared: the one, a general plan, will be plotted and drawn to a scale of 2 feet to the mile, or 220 feet to 1 inch; the detailed plan will be 10 feet to the mile, or 2 statute chains to 3 inches; the survey will include an area of 20 square miles. The general plan will afford a complete view of the whole drainage area, the main lines of sewage, as also a complete system of contoured altitudes, with fixed points of level at the intersection of all streets, roads, and other eligible sites. The detailed plan will show every house and building, the main house and back drainage, pavements, boundaries of property, water and gas works, and will be available for assessments and various other points of information. The work will occupy from two to three years in completing. The size of the general plan will be 12 feet by 10 feet; the detailed plan about 60 feet by 50 feet, the latter in sheets, and bound. The survey will be made under the direction of Mr. Pigott Smith, the town surveyor.

### THE RUINS OF GLENDALOUGH, IRELAND.

—A writer in the *Athenaeum* says,—"There are few readers who have not heard of Glendalough, or 'The Seven Churches,'—and in these locomotive days many have visited that interesting locality. For my own part, though familiar with it from childhood, I rarely revisit Ireland without spending a day among the ruins which consecrate that wild and romantic valley. Independently of their high antiquity, they are hallowed by the name of the popularly sainted Kevin, who, all allowance being made for the myth that hangs about the traditions of his deeds, undoubtedly did good Christian work in his day. During the past summer I once more visited Glendalough; and I was shocked to see how much their ruinous condition had been increased since I saw them three years before. The spoiler has here been active and unrestrained. Man, more than the knawing tooth of time, has dealt heavy blows on these sacred fanes; and, if the reports of the villagers are to be depended on, many a curiously carved stone has been carried off during midnight hours. The curiosity-monger—who knows nothing of the true archeologic spirit—has, in his unconscious barbarism, carried away some mere dead letter of a legend which in its solemn entirety he had not the heart to understand. The Archbishop of Dublin is Bishop of Glendalough. I would remind his Grace that his predecessor is termed in the Bull of Pope Lucius III. 'Episcopus inaulurum,' and that the sea reached to the walls of the capital. Have we not a right to hope that so enlightened a prelate as Dr. Whately will do something to prevent the speedy decay of his ancient churches? Are the citizens of Dublin themselves so little interested in Glendalough that a few pounds cannot be collected and a society established to preserve the vestiges that yet remain of these old temples? Just now, they are the play-ground of the wild youths who abound in that wild glen, and the stones are hurled from the ivy-clad walls in the utter recklessness of destructive boyhood."

**THE ART-UNION'S "SEVEN AGES."**—Mr. Holloway\* has published, in quarto, a beautifully designed Text, with ornamental borders, engraved by Becker's patent process, on eight steel plates, to accompany the illustrations of the "Seven Ages" by MacIse, recently distributed to the subscribers to the Art-Union of London; and he has added eight well-known designs illustrative of the same subject, by Wilkie, Calcott, Mulready, Hilton, Collins, Chalon, Cooper, and Edwin Landseer. The text and borders are exceedingly pretty; Mulready's group very excellent. Some of the other designs (remembering by whom they are executed) ought to make the Art-Union subscribers better satisfied than ever with what is done for them. Bound with MacIse's Outlines, the collection makes a very interesting Shakspeare volume.

**NEW ACT TO AMEND DEFECTS IN LEASES.**—An Act of Parliament was passed in the late session to amend an Act of the previous year for granting relief against defects in leases made under power of leasing. Some peculiar circumstances attended the passing of this statute. Last year an Act was passed declaring that the acceptance of rent under an invalid lease should be deemed a confirmation of such lease. This provision, when known, startled the profession, and immediately another Act was passed suspending its operation until June, and in the meantime the present Act was passed, by which it is provided that where there is a note in writing showing the intention to confirm an invalid lease, the acceptance of rent shall be deemed a confirmation. In cases of a reversioner, where he is able and willing to confirm a lease, his confirmation may be taken.

**ST. JAMES'S CHURCH, PICCADILLY.**—The outside of this church is undergoing repair: the following are the tenders for the works, viz., tuck-pointing, painting, and cleaning:—

Abbott and Son .....	£515
Burt .....	477
Cozse .....	438

We hope it is not true that the churchwardens are going to remove the present illuminated clock face. The tower is greatly out of the upright, and, if we mistake not, gets worse and worse.

\* Bedford-street, Covent-garden.



**SHEFFIELD SCHOOL OF DESIGN.**—The annual meeting of the patrons and friends of the Government School of Design at Sheffield took place on Thursday in last week, and was numerously attended. Earl Fitzwilliam was in the chair. The report read by the hon. secretary congratulated all interested on the continued prosperity and increasing financial resources of the institution; and announced that two scholarships, one of 20*l.* and the other of 12*l.*, had been established; the former to be held for two years and the latter for one year. These were in addition to the mayor's prize of ten guineas for the best original design of an article of Sheffield manufacture. The special class for ladies had been very successful, being now attended by fifty-three pupils. The chairman, in his address, drew attention to the liberality of the Government to this school as one of the first class. As to the ground for hope of great improvement in the taste with which the British, as a first-class manufacturing nation, would yet adorn the fruits of their unrivalled mechanical genius, his lordship said he had yet to be taught why the English mind is less perceptive of taste in art than the mind of the Frenchman, and the mind of the German from whom we derive our origin. He saw no reason why the German who resided in Bavaria should have a better taste than we, who descend from those Germans who a thousand years ago migrated to this country, unless the reason be in this, that the Government of Germany—that the Government of most of the German states—have given greater encouragement, and elicited the taste of the people, to a greater degree than has ever been done by the Government of this country. The meeting was also addressed by Mr. Parker, M.P., Mr. Babbage, Col. Keppel, and others; and appropriate resolutions were unanimously passed.

**THE IRON TRADE.**—The iron masters appear to have at length got tired, themselves, of the mockery of the nominal price system, and not even their most devoted adherents can venture to quote any price as that fixed at the last quarterly meetings. The truth of our assertion, that sales had been made at a lower figure than ever, has been supported by subsequent events, as well as by a very general impression in the trade that former prices cannot be sustained. Pig-iron has been offered for sale at almost any price, and iron worth 10*l.* a few years since would have been willingly parted with, we believe, at less than one-eighth of that price! One leading house, at least, is said to have declared a reduction of recent prices to the extent of 10*s.* a ton. And yet it is admitted on all hands that the present depression is not owing to any material reduction in the demand for iron for home consumption, with the exception of rails and other descriptions required for railway purposes. At Birmingham the manufacturers are fully employed, and trade is unusually brisk. So is it elsewhere. The masters themselves now see clearly, what we some time since pointed out, that all their difficulties arise from the difference between a host of furnaces called into existence for a temporary purpose, namely, the formation of railways, and the much smaller number necessary to the normal trade of the country. The amount of that difference in number must be lessened as rapidly as possible. The only question seems to be, who is to give way?—who is to forego the final chance of remuneration? The weakest, doubtless, will go to the wall, and the longest purse prevail.

**ELECTRO-TELEGRAPHIC.**—A suggestion, long since recorded in our journal, has been revived by a proposal of Mr. Krone, of the telegraphic department at the Waterloo station, to provide each train with a telegraphic instrument and batteries, so that in case of accident at intermediate stations where there are no telegraphs the wires might be easily attached to the line wires, and the necessary communication made. "The guard," he adds, "might be easily taught to connect up and work the instruments, so as to be prepared in any case of emergency. The plan could be easily adopted, even where there is no station whatever."—All operations connected with the submarine telegraph between England and France are suspended till the spring. The interval will be employed in manufacturing the wire cables and other apparatus, so that the electric line may be completed by May.

**WATER WORKS.**—The Grand Junction Water Works Company, I have been informed, employ engines of 100-horse power to force their water from Brentford to their reservoir on Campden Hill, Kensington, and the resistance of the air in the pipes is occasionally so great that they cannot regulate to a certainty the force to be applied, and the water, in consequence, sometimes follows the air up the vent pipes and overflows. May I ask why the principle of the air-pump, or of exhaustion and atmospheric pressure, should not be applied to the pipes from the metropolis: surely the force required would be less, and the expense reduced, whilst the result would be always the same, and equable? If any new company should be formed for supplying the metropolis with water, I should be glad to see the experiment tried of conveying the pipes to supply the houses on handsome iron arches on each side of the streets. This would avoid the repeated necessity of breaking up the causeway to relay them, and be in every respect more handy.—J. P.

**NORTHAMPTON ARCHITECTURAL SOCIETY.**—The annual autumn meeting of this society was held on the 10th inst., in Northampton, the Marquis of Northampton in the chair. The report read by the Rev. Henry Greene mentioned, amongst other matters, that in the county of Rutland, the church of Ashwell is in course of complete restoration, without and within, at the sole expense of Lord Downe. The Chicheley Brass, in the church of Higham Ferrers, in memory of the parents of Archbishop Chicheley, the great architectural benefactor of Higham, and founder of All Souls' College, Oxford—has been restored by Messrs. Waller. Also that "in consequence of applications that have been frequently made on the subject, the committee have prepared a list of architects and artificers in church work, who have been employed by members of our own society, and whose designs have been submitted to the committee, together with a list of useful books of reference on architectural subjects. This list is now in course of publication, and the committee will feel obliged by the suggestions of members to make the list as perfect as possible. The committee, however, wish it distinctly to be understood that in publishing the names of persons employed within the Archdeaconry, they do not take upon themselves the responsibility of recommending all or any, but, by referring to the place where their work is executed, leave each person to judge for himself." Rev. G. A. Poole then read a paper "On the development of Geometrical Tracery." Rev. C. H. Hartshorne then read a paper "On the Calotype as applicable to architectural objects;" and Rev. H. J. Bigge a paper "On Memorials in Churches."

**VENTILATION.**—We have accounts of an invention in America bearing on this subject. It is a self-acting ventilator for passenger ships, acting with the ordinary roll of the vessel. A tube, having a curve of the shape of a segment midships, is filled with a certain quantity of water: the two upper openings are connected with two vertical tubes leading to the decks below, with certain valves at the point of connection. A working model shows the effect to be, that fresh air is introduced on one side, and foul air is pumped out at the other. The inventor is about to apply for a patent in England.—Sir John Walsham has been ventilating workhouses by means of zinc tubes, 3 inches in diameter, perforated at the sides, towards the bottom, with holes of 1-12th of an inch diameter, which are carried across the ceiling of the room, suspended by hooks, and taken through the walls to the open air, where they terminate in perforated convex ends, provided with caps, hung by a small chain, to cover the end most exposed to the wind in extremely cold weather. Three tubes will suffice for a room 23 feet by 16, or in that proportion for larger apartments, intervals of about 10 feet in the length of the room being ordinarily the just medium.

**TENDERS.**—We beg to supply you with the highest and lowest amount of tenders for the "Bird in Hand" public house, at Stratford, for Messrs. Charrington and Co. under Mr. Mason, architect:—Cox and Son, 1,998*l.*; Holmes, (Eastham), 1,418*l.* How is this?—Y. Z.

**FREE LIBRARIES AND MUSEUMS.**—The Salford library and museum is in a prosperous state. An additional room for books is nearly completed, and will hold 5,000 volumes, besides 7,000 already collected. A number of volumes have been already provided for the additional library. The government have granted a number of casts for the museum. The grounds have been laid out in picturesque plots, and an ornamental pond and fountain are in course of formation.—At Liverpool a special meeting of the proprietors of the Royal Institution has been called to consider the scheme proposed by the committee of the council for the formation of a public library. It has been in contemplation to hand the Royal Institution over to the council, on certain terms, for the purposes of the library, and the committee of the institution have issued a circular urging assent of the proprietors generally. The committee state that the funds at their disposal are inadequate to do justice to its objects.—A public meeting has been held at Kidderminster, at which it has been resolved that the town council be requested to carry out the provisions of the Museums and Libraries' Act. The meeting was a very limited one, though regularly called by the mayor, and an attempt was made to burke the resolution on that ground. The absence of active opponents, however, in this case, should be regarded as equivalent to the consent implied by silence.

**IRISH BELL FOUNDRY.**—A first-class church bell has just been produced at the foundry of Mr. Thomas Hodges, of Abbey-street, Dublin. It has been cast for the new church at Sandymount, erected by the Right Hon. Sydney Herbert, and bears on its outer rim the name of the clergyman and churchwardens. It weighs 11½ cwt. This kind of work, according to *Saunders's News Letter*, is now nearly confined to Ireland, although formerly carried on largely in England—a circumstance which, arose from the monopolising desire of an English gentleman, who purchased nearly all the bell foundries in England, the knowledge of mixing properly the various bell metals having passed away with his workmen.

**CURIOUS FRACTURE OF A SUSPENSION BRIDGE.**—While some sheep were lately passing along Balloch Suspension-bridge, which spans the Leven near Lochlomond, it suddenly gave way in the middle, and sank about twelve inches. The rupture seems to have been caused by the snapping of two rods, each about an inch in diameter, and this has led to the twisting and breaking of other parts, making the whole difficult of repair. The bridge is said to be on Dredge's principle. It has stood eight years, and, during Balloch fair, was crowded with hundreds of people without evincing the least weakness. The fracture took place opposite the side on which the sheep were placed.

**THE NORTHERN SCHOOLS, ST. MARTIN'S-IN-THE-FIELDS.**—The new Northern Schools, of which we gave an engraving in our last volume (p. 451), were opened on the 17th instant, under the auspices of the lord bishop of the diocese, too late for us, however, to do more now than allude to the fact.

**RAIN-WATER AT RAILWAY STATIONS.**—Having observed, in a recent number of *THE BUILDER*, an article on the neglect of rain-water which falls on house-tops, it appeared to me that a much more important use than is there mentioned is also neglected, viz., with regard to locomotives. Your correspondent gives 14 gallons to the square foot per annum. Now, many railways have, not square feet, but acres of roof, and as one acre is equal to 43,560 square feet, which gives 609,840 gallons of soft water per annum on one acre of roof, the advantages which would follow are these:—1st. The water would be had for the expense of the cistern. 2nd. Less consumption of coke, as rain-water boils easier than hard. 3rd. The boilers would not be incrustated.—A. G. M.

#### TENDERS

Delivered on the 2nd inst. for the drainage of the Deves, at Yarmouth, about 7,400 feet of sewer, under the direction of Mr. Billing, town surveyor:—

	£	s.	d.
J. Thompson, Yarmouth .....	4,484	0	0
H. Johnson, London .....	4,393	0	0
G. Pegging, Yarmouth .....	4,234	10	0
R. Page, Yarmouth .....	3,922	0	0
R. Frost, Yarmouth (accepted) ..	3,715	0	0











# The Builder.

No. CCCCIII.

SATURDAY, OCTOBER 26, 1850.



HE works in St. James's-park are progressing. The iron railing at the west end of what is known as the Enclosure has been put back, in a line parallel with the front of the Palace. The iron railing of part of the Green-park, opposite Stafford House, has also been altered, so as to be a continuation of that line, and make the ground opposite to the Palace into a regular form, opening into the Mall, the centre avenue of which will be exactly opposite to the centre of the Palace. The ground enclosed opposite Stafford House will be planted to correspond with that on the opposite side.

The Marble Arch has been taken down to the ground: every block has been numbered, and a drawing made of each course, with corresponding numbers on the blocks, so that they may be exactly replaced hereafter: should it be ultimately determined to re-erect the arch in the Mall near Stafford House, where, with a garden on either side of it, it would seem to form the commencement of the palace grounds, it will be a matter for regret that it was not moved to that position bodily, as might have been done without much difficulty.

In connection with this subject a series of designs for the improvement of the Park and some adjacent edifices have been submitted to us by Mr. Alfred Beaumont, architect. The object of the author is stated to be, to give more importance to St. James's-park, in consideration of its proximity to her Majesty's residence, and, at the same time, to benefit the public. The main features of the plan may be briefly mentioned. Beginning at Hyde-park-corner, the author proposes to convert the arch at the top of Constitution-hill into a royal entrance into the grounds of the Palace, adding a wing on each side of the arch, the eastern wing being for the admission of the public to the park, and the western wing to span Grosvenor-place and bring St. George's Hospital into the composition; to bring forward the marble arch about 200 feet, with a sunk area right and left to the Palace; to form a direct thoroughfare into the Park from St. James's-street by a way through St. James's Palace, the latter being added to and altered externally. This road would be continued across the enclosure, with a suspension-bridge over the water, into Bird-cage-walk.

One principal feature in the scheme is to form an opening into the park from Charing-cross, as often urged by us, and it is this which we would more particularly direct attention. To some of the previous suggestions there are objections: the alterations at Hyde-park-corner and in front of the Palace, for example, involve encroachments on the ground open to the public, against which, although comparatively small, we should feel bound to protest. Again, the proposed new road through St. James's Palace includes the transformation, if not destruction, of the ancient gateway, nearly the only remaining part of Henry the Eighth's original palace. We must not lightly yield our historical memorials. Good modern buildings may (the authorities

willing and a proper course adopted) be obtained at any time; but our ancient landmarks for history, prompters of thought, stone storytellers speaking the mind of earlier periods—the autographs of a nation (so to speak)—cannot be manufactured to order, or recovered when once suffered to fall away: the value of such things to the country cannot be calculated; and they should be watched by the country with the greatest jealousy, and maintained with the greatest care.

We have engraved Mr. Beaumont's design for the entrance to the park from Charing-cross, not because we think, any more than the author, probably, that it is the particular arrangement that should be carried into execution, before any other, for the proposed opening, but to bring the matter prominently before the public, and to show them what a vast improvement such an entrance would be, and, indeed, how much required it really is. It would form the entrance to the avenue leading up to the palace, and would bring into view from the avenue the statue of Charles I., Northumberland-house, and Trafalgar-square.

It would require the removal of the houses between Spring-gardens and Charing-cross, and a few others; but the cost of this would be met in part by the increased value which would be obtained for the ground remaining to be built on, as it would give room for the completion of Carlton-terrace, and provide an eligible site for a block of buildings of similar class, such as are shown on the right-hand side of our engraving.\* The low buildings on the left-hand side, next Drummond's Banking House, are intended for fancy shops, to screen the backs of the houses in New-street, without interfering with light or air.

Mr. Beaumont includes in his general scheme the continuation of Pall Mall to the Green-park, by the removal of some houses on the north side of Cleveland-street, the advantage of which was long ago pointed out by us. He also proposes the formation of a lofty and convenient drive through the Horse Guards, in lieu of the present low and confined archway.

The Westminster improvements come naturally into view in any consideration of the means of bettering the approaches to the Palace, but what the commissioners are really doing there we are not in a position to say with certainty. We have been strongly urged, from more than one quarter, to bring before the public the new street which has been opened, and to point out the opportunities it affords for public buildings and private speculators; while, on the other hand, we have received forcible representations, impugning the proceedings of the commissioners, and gravely questioning their fitness for the duties which devolve on them. We may look further into it. Certain it is, that an enormous sum of money has been spent, with, at present, very little to show for it.

The want of a standing committee or commission for the improvement of the metropolis, to take advantage of such opportunities as occur, to preserve general concord in improvements, and to check injurious proceedings which are now constantly occurring, is greatly needed. At present, what is done by one party is undone by another, and new buildings are permitted to be put up which must be bought to be pulled down before long. Efforts to beautify the metropolis we need scarcely look for: the usefulness of the beautiful is not yet sufficiently felt; but the improvement of thoroughfares and the maintenance of open

areas might be expected from the merest utilitarian. Every bad step is followed by a worse. Look at London-bridge: no sooner is a huge building erected to block up the Southwark end of the bridge, than another is commenced, next the Adelaide Hotel, on the City side. Thousands were spent to improve this part of London, to get good approaches and open the river, and now all the advantages gained are about to be sacrificed. Even the new Corporation buildings at Billingsgate appear to us to come nearer to the water's edge than seems desirable. The improvement of the banks of the Thames is much to be desired and often talked about, but the tendency of actual proceedings seems unfortunately quite the other way.

## SOME CONTRIBUTIONS TO THE ELUCIDATION OF THE CONSTRUCTIVE DETAILS OF SANITARY ARCHITECTURE.\*

FROM the defective state of our drains and sewers, the ramifications of which extend in countless lines throughout our large towns, a state of evil arises which in its consequences is fraught with appalling dangers to the health and lives of those who are placed within its influence. Dr. S. Smith says he believes "the immediate and direct cause of fever to be a poison generated by the decomposition of animal and vegetable matters." Now, it is easy to conceive how defective drains and sewers, as well as that abominable contrivance the cesspool, may be said to be producers of fever, when it is considered that the substances arising from the exuviae of the inhabitants of the houses, as well as the refuse of domestic preparations, are thrown into places, or endeavoured to be passed through drains, from which, owing to their defective construction, they are not speedily removed, but are allowed to remain and decompose, issuing forth from their foul alembics the seeds of disease and death. The following may be considered as a statement of the principal defects of town drainage. "In some places there are only open or surface drains, allowing exhalations freely to rise into the atmosphere, and these often are stagnant, by that more noisome. Even covered drains are often made with insufficient fall or declivity, and so become only extensive cesspools, contaminating the soil around them, and the atmosphere above them. Even with good street drains, there may be defects in the house drains, or in their connection with others, or in the sinks or water-closets: then the supply of water requisite to render the drains effective is often altogether wanting, or is obtainable only at an expense which the poorer inhabitants cannot afford." The few remarks which we are about to offer are on the subject of household drainage. Much has been written of late years, and with considerable effect, in drawing the attention of practical men to the consideration of the subject. In a short article like the present, we cannot be expected to enter into all the details of this subject, the various plans proposed, &c., but our remarks may be useful in directing attention to the essential requisites of effective house drainage.

And first as to the size of the drains. These should evidently be proportioned to the quantity of matter which will have to be conveyed through them. It is somewhat surprising to see the mistakes which were made, not so many years ago, on this point: size seemed to be the great end aimed at. But a "new light" has arisen on the subject: we now perceive that when a drain is too large for the matter which is to pass through it, the end we wish for is only the more difficult to be attained.† When the surface of a drain is extended, the water or fluid-sewage is lessened in bulk, and its motive power diminished; a sluggish movement being the inevitable result. Mr. Guthrie seems to have been amongst the first, who went vigorously to work, to expose the absurdity of the old method, and to introduce a more efficient and scientific system of house drainage. He says, "the grand object is so to proportion the drains that their supply

\* See page 446, ante.

† Mistakes the other way have been made in recent times, and much inconvenience caused.



of water would at all times be effectual in removing soil, and preventing depositions of all kinds: this, it is clear, could only be done by causing them to bear a proper ratio to the roofage, and the size of tubes through which water is conveyed to the house from which the drain is to be led. Now if, as is almost always the case, the water-pipe of an establishment leading from the main be only half an inch, or say an inch, it struck me that there could be no necessity for a construction of one foot, one foot and a half, two, and even three feet calibre to conduct this water, with its accompaniments, from the house into the common channel, or main street sewer; it having merely acquired the addition of soil." The rule deducible from these remarks, by which the size of house drains may be calculated, is simple. "To the calibre necessary to carry off the water laid on, add that required for the reception of the rain or surface water—this latter may be readily calculated from the indications of the rain-gauge of the locality;" or from the quantity assumed to be derived from a roof of a given surface, as we have before noticed. For moderate-sized houses, say of eight rooms, and holding some five or six persons on an average, a tube of five inches in diameter will suffice for the house drain. A six-inch pipe laid with a sufficient fall will be ample, if properly treated, for the most capacious private house. Having, then, ascertained the size, the next step will be to decide on its form and material. With reference to the shape or form of the drain, it is now universally admitted that the circular, or, if comparatively large, the elliptical or oviform, is decidedly the best. As to the material, the two points to be obtained in such are, "impermeability, and smoothness of internal surface." These, it is evident, cannot be easily obtained, if at all, by the use of bricks or other similar material. The earthenware tubes, now so largely used, offer the required advantages: they are tolerably cheap, easily laid down, and, by being glazed in the interior, as some kinds are, little or no resistance is offered to the passing fluid; they are, moreover, kept clean for a considerable time, the soil refusing to adhere to the polished interior. The depth at which the drains are to be laid is the next important matter to be considered. There are various opinions on this point: the construction of many houses, having deep basement stories, necessitates, in the opinion of some, the laying of the drains at a considerable depth beneath the surface of the ground. The more thoroughly the principle of having the drains at or near the surface of the ground is carried out, the more efficient and certain will be the operation of the drains. It will certainly be objected to this plan, that many, if not all, basement buildings must remain undrained; but even in such cases "it will be still equally imperative that all the sewage water shall be delivered into the drain at or near the ground level. No sink or other apparatus for discharging refuse water should be retained in the basement, and the extra labour of carrying this water up to the surface level, or head of the drainage, must be incurred as the penalty of this misconstruction or misappropriation of the building."

In laying down drains, the arrangement first to be looked to after the size and depth are arranged, is the collecting of the drainage matter to one point. Thus the products of the water-closet and sink should be led at once to a trapped contrivance by which it will be readily admitted to the drain leading to the sewer, yet all gaseous matter therefrom prevented from ascending through it to the house, or surrounding atmosphere. This is an essential point which ought not to be overlooked. The contrivances for attaining this are so numerous, cheap, and effective, that there is and ought to be no excuse made for neglecting it. As the Commissioners of Sewers in the metropolis consider the joining of the house drain with the main sewer a matter of such importance that they make it imperative upon house owners to hand over this part of the construction of drains to their own officers; it is needless for us here to enter into a detail of the methods adopted. In laying drains it must be recollected that all angular and sudden bends must be avoided: these are very prejudicial to the speedy carrying off of the products. When curves are essentially requisite they ought to be of the largest possible radius.

All joints ought to be carefully luted, so as to render the whole length of the drain perfectly impermeable.

In connecting water-closets with drains, the point of discharge from the same should be as close as possible to the main sewer into which the drain empties itself: the matter from the closet being certain to be more solid than liquid—the sewage water will have more demoving force at a point further away from the place where it enters the drain than near to it. The farther, then, the water-closet is from the place where the greater portion of the sewage water enters the drain, the more certain will the removal of the solid matter be. The water from the kitchen-sink, and from the fixed wash-hand basins (if any) in the bed and dressing rooms, should, if possible, be admitted to the trap basin of the water-closet: these will act efficiently in removing the solid matter therefrom. Cesspools, those defective contrivances before alluded to, should never be made in new buildings. In cases where they unfortunately are in use, more especially where a privy is attached to them, the entrances should be carefully trapped so that the offensive odour can have no means of access to the house. A drain should be led from a part of the cesspool, at a certain height, to the drain leading to the sewer, so that the superabundant material in the cesspool will at once be drawn away, and the matter therein consequently kept at the same level. A trap basin should always be adapted to a cesspool privy—the syphon form is cheap and effective. The refuse water from domestic purposes may be thrown into this, which will aid in carrying off the solid matter. The wisest plan, however, is to fill up or build carefully over, all cesspools wherever situated, substituting for them efficient well-drained water-closets. An important desideratum in effective drainage is a ready means of access to the drains, by which they may be examined and cleaned when necessary. If the tubes are placed in any thing like straight lines, this operation will be much facilitated. Moveable covers, placed at the angles or turnings, through which a simple apparatus might be inserted for removing matter from the interior of the drains, have been suggested. The plan seems good, but would it not be a matter of difficulty in getting the parties performing the duty to replace carefully these covers? If so, the cure would be infinitely worse than the disease. If the drains are properly proportioned, according to the matter they have to convey, and composed of proper materials smooth in the inside, we apprehend there will be little necessity for mechanically cleansing them.

So much has of late been written about the importance of ventilation, that all remarks appear trite and common place. They are nevertheless disregarded. All are agreed as to the necessity of having a good supply of air in the interior of our houses; nevertheless, people are by no means unanimous in their endeavour to attain such by the adoption of constructive contrivances or arrangements connected therewith.

The most simple and efficient mode of ventilating is by taking advantage of the natural currents which are created and maintained by the movements of heated air. Air when used for the purposes of respiration, after being expelled from the lungs, is raised in temperature to such a degree, that it rises immediately upwards. Some practitioners advocate the mode of ventilating by withdrawing the used air by the bottom of the apartment, as, say they, the carbonic acid gas, composing by far the largest portion of expired air, being a heavier gas than common air, must perforce descend to the ground. This goes directly counter to the facts so clearly elucidated by Dalton, in his theory of the diffusion of gases. From his experiments, which were thoroughly conclusive, and which have been corroborated by those of others, more especially by Professor Graham, the fact was clearly established, that "all gases tend to diffuse themselves through each other even when no chemical combination ensues." Light gases and heavy gases mix freely with one another in opposition to their natural gravities. "Light gases even descend, and heavy gases ascend." Dalton accounted for this phenomenon by assuming that gases diffuse themselves through each other in the same way as

they would pass into a vacuum. Thus, "in consequence of this power of diffusion, no gases can ever remain for any length of time at the surface of the earth, however heavy. The poisonous carbonic acid evolved by respiration, combustion, and numerous other natural operations, steals insensibly into the superincumbent air, and has been detected at the greatest altitude which man has hitherto attained."

We are by no means disposed to look upon ventilation as a matter of difficult attainment: we consider that the laws which regulate the movements of air are simple, and can as simply be made available for practical purposes. To maintain a healthy ventilation of the lungs in the open air is easy enough: the nearer we can make our houses approach to the condition of the external air, the more perfect will they be with reference to their health-maintaining powers. In carrying out simple plans to attain this, various modifications must necessarily be introduced to be made subservient to our ideas of comfort, whether these ideas are or are not consistent with reason and sound scientific views. Thus, it is an easy matter to give to any room an unlimited supply of fresh air, but unfortunately it is not such an easy matter to warm that air so as to make it comfortable in its effect, and to deprive it of that power which it undoubtedly has when injudiciously admitted, of inducing colds and other complaints. Still, we hold, it would be a libel on the mechanical genius of the day, to say that simple, effective, and cheap means of heating air cannot be introduced. Thus, there is much heat actually lost—thrown up the chimney, or communicated uselessly to surrounding materials in every fireplace,—which could be simply and cheaply used for affording heat to a simple contrivance placed opposite the fresh air aperture. It may be said that more fuel would thus be consumed: little or none; but if it were the case, it is all got back again, and with double effect—it serves to warm effectually the air of the room, and what is coal consumed for if not for this? A small supply of hot water will be sufficient to heat the admitted air used for ventilation, by the application of a simple contrivance to the fires used in a house, by which most of the heat now lost would be made available for the very purpose for which coal is consumed. The water thus obtained could be led to places where requisite, and made useful as a heating power by being placed in a series of small pipes, or a "heating box." There would be no trouble attendant on the plan: once set in operation, it might continue for months untended. We do not despair of seeing gas applied to effective heating apparatus: it is admirably adapted for dwelling-houses. In making apertures for the admission of fresh air, the builder need not be apprehensive of making them too large or too numerous—the more area he can get the better. In the open air, although surrounded by an ocean of air, we do not take more than our lungs require; and so in like manner in our houses, if the supply be ample, more than in fact is required, it will do no harm—the supply of air through the apertures will, in truth, depend upon the demand for it in the interior.

For withdrawing the foul air, various plans have been put in requisition: the chimney is a good ventilator, but its powers of usefulness are restricted by the facility with which smoke is driven down the apertures. Many contrivances are made to obviate this, but they are not altogether faultless, and should be looked upon at the best as mere make-shifts, or substitutes for better plans. Flues may be conducted up the interior of the walls, made with smooth circular tubes, having their upper apertures beneath the cornice or eaves, and the lower one at the cornice in the apartment to be ventilated. The most efficient plan would be the carrying up of independent flues alongside of the chimney-flue, the heat of which would increase the temperature of the vitiated air in the ventilating flue, and consequently its ascending force. Such an independent flue would act in most seasons, but in winter, from the chimney-flue being heated by the products of the fire, the power would be greater, and it would act with more certainty. At the aperture in the room, communicating with the interior of the ventilating flue, a gas jet might be lit in summer time which would act efficiently as an exhausting power. The



plan of having separate ventilating flues, recently registered by Mr. Walker, of Manchester, seems likely to be useful. It consists of a series of oblong tubes, rounded in the corners, placed side by side in stacks of any number required. These tubes are of different sizes; the large ones acting as chimney-flues for the fire-places; the small ones as ventilating tubes. From the side of the chimney-flue forming that of the ventilating tube, the air contained within the latter is rarified, and its ascending power increased. The plan is simple: from the arrangement of the tubes, little or no extra space is required in the placing of a stack of chimneys.

#### VENTILATION OF HOSPITALS AND OTHER BUILDINGS.

THE conditions prescribed for Dr. Arnott with respect to the ventilation of the York County Hospital, now in progress, were the forcing of a sufficient quantity of air into the building every minute, and the means of measuring that quantity exactly: 2,000 cubic feet a minute was the amount determined on, and it was desired that the apparatus should be as nearly self-acting as possible.

To meet these requirements a pump has been constructed, consisting of a weigh-beam, with a gasometer (a bell-shaped metal vessel) working in a trough of water at one end, and a counterpoise at the other. The gasometer is about 6 feet diameter, and holds 125 cubic feet of air. Every time the gasometer descends or ascends, its contents are discharged into air-drains leading to the building, and this being made to occur sixteen times in a minute, the requisite 2,000 feet of air are delivered.

To give motion to the machine, the well-known property in fluids of transmitting pressure equally in all directions was had recourse to. An inch pipe from a cistern of water 60 feet above the apparatus gives a pressure of 30 lbs. on the square inch, and this acting on a syringe 12 inches long, with a piston 2 inches in diameter, is sufficient to force up the gasometer, which, being heavier than the counterpoise, again descends by its own weight: of course, if the column of water were 120 feet long, half the quantity of water would do the same work. By the arrangement we are describing, the quantity of water used per day is 1,440 gallons, which at the Manchester rate would cost  $4\frac{1}{2}$ d. per day, if wasted; but inasmuch as it is uninjured and unsoiled, it may be used for domestic purposes, and so would cost nothing. To prevent the pipes from being burst by the shutting off of the column of water, an air-vessel is provided near the syringe; but into this and the other ingenious arrangements by which the general idea we have indicated is carried out, we need not now enter.

Should any very young reader have heard here for the first time of this property in fluids of transmitting pressure equally in all directions, the hydrostatic paradox, as it has been termed, and which produced the hydraulic press, they cannot do better than apply themselves to "The Elements of Physics," written by the constructor of this pump, and they will find their eyes opened by it and their understanding enlarged.

#### THE BRITISH MUSEUM.

AGITATION has gained for the public an immunity from the meditated inclosure of this pile. Large as is the structure, already the custodes complain of want of room for the glorious remnants of antiquity now deposited in the court-yard of Montague House, and of space for the arrangement of what had been formerly huddled together on the shelves of the old red brick edifice. Any ordinary exhibitor could find in the spacious halls (not half filled) of the new Museum room for double the collection, and the caters for the great coming National Exposition could easily find space in the empty expanse for numerous galleries to deposit and array double the number of glass cases which now only half furnish the area of the various compartments. Without disturbing the domiciles already completed, an expedient drawn from the Great Exhibition of 1851, might afford ample space for the reliques from Nineveh—the sphynxes, lions, obelisks, and even for the sculpture now scattered along dark galleries, or barred off from obser-

vation in "souterrains" at a temperature below zero!

The great internal court-yard if covered in with a glass dome would give room for the whole contents of the national collection: an ample causeway might be reserved all round, and at the angles four areas as large as most structures possess in cities.\*

With four entrances from the centres of the square, it would be accessible on all sides, and being covered in with pellucid glass this colossal hall, whatever its height, could obstruct no light from the windows of the present structure. Ornamentation to any extent might be introduced in stained glass—but simplicity, as in the details of the Exposition, is the truer nobility.

From a miniature example (the rotunda in the Colosseum) the advantages of a circular and well-lighted hall may be inferred; and whilst such a structure may be easily heated to a genial temperature, there is no danger from fire, as the material is at the same time incombustible and almost imperishable.

Ventilation in summer can be as easily assured as warmth in winter; and here while on the subject of the Exhibition, it is impossible to omit the expression of a hope that this structure may be permanent. Such a winter garden, enclosing eighteen acres, filled with all the shrubs and flowers that are indigenous to the Temperate Zones, heated to an equable degree, and cultivated as the gardeners of the Horticultural Society, Regent's Park, know well to effect, would be a solace, a benefit, and a luxury to the inhabitants of London.

But again to the Museum—if the wings devoted to private domiciles are not gutted and converted at a vast expense to the purpose of locating marbles and blocks, there is no alternative except to erect another massive building on a new site, and therein to encase the remains, which could never be introduced after the portals were set up. Next to space, light for sculpture is the first consideration—and these obtained, it is of little consequence where the custodes and servitors dwell. — QUONDAM.

#### ARCHITECTURAL PUFFING, AND "ECCLESIOLOGICAL" BITTERNESS.

SIR,—With a natural curiosity to know what is said and done on all sides, in matters of "Ecclesiology," I usually see the *Ecclesiologist*, a periodical which, if conducted in a less partial and more generous spirit, might exercise great influence, and be looked upon as an authority in such matters. That this is not the case, as now conducted, I unhesitatingly affirm. I have often been struck with the blind and almost nauseous praise of two favoured architects, whose works are almost invariably held up to admiration; the whims and eccentricities of one being deemed "deserving of study and imitation;" the common-place productions of the other, with his servile devotion to all the extreme views and "dicta" of particular parties, being thought "excellently proportioned," or "rivalling ancient examples." In the last number of the *Ecclesiologist* I was particularly struck with this favouritism, though it is by no means uncommon, whilst the works of almost every architect mentioned are condemned, as not falling within the extreme views of "ritual arrangement" entertained by the critics of this work, or as not according with their distinctions of date and style. There is a view given of a common-place inharmonious design for a cathedral building at Perth, and two views in connection with a very simple and easy restoration. The only other views of modern churches which have ever been given in the *Ecclesiologist* were by the same architects as these. This year they give a lithograph of the new Church of Saint Mary Magdalene, building in Munster-square by one of their friends, who, in their own words, "has enriched the present number with a view of the proposed building," and of which I can only say, I seek in vain to discover any great merit or originality—a church which is not to be named in the same day with many other modern churches, building by less favoured architects. The other illustration is of "a proposed church to be built at Stoke Newington" by their other protégé. This affected

and unpleasing composition has, however, received such a dressing in a letter from Mr. E. A. Freeman (published in the October number of the *Ecclesiologist*), that I am content merely to ask your readers to refer to this letter: they will, no doubt, agree with Mr. Freeman and myself that "its entire want of architectural merit is rendered more conspicuous by its pretence and its affectation of singularity." In Mr. Freeman's letter he complains boldly and truly of the barefaced partiality shown to this gentleman. The *Ecclesiologist* is so completely to these two practitioners what the "Poet of the Million" is to Messrs. Moses and Son, that I recommend these architects to have the complimentary passages of each number reprinted in a small form and mediæval type, and thrown into the windows of cabs and omnibuses as they leave the railway stations: it would probably add to their employment, as there is no doubt this ingenious method of puffing does to that of its authors, Messrs. Moses.

At the meetings of the committee of the Ecclesiological Society the designs of these gentlemen form the standing dishes—the *vrai pièce de résistance*. No wonder that the ideas of these gentlemen, having been subjected to the criticisms and mutilations of the committee (and no doubt received by their authors with all faith and meekness), are puffed and praised by the critics of this work, frequently members of this very committee, and deemed as supremely correct and ecclesiastical, "deserving very high commendation" and receiving their "warm approbation." It would be fairer in these writers to remember that their views and "dicta" are not laws; that they are strongly disputed, and even dreaded by a large portion of the church and laity. There should, at least, be some consideration for the works of other architects not employed by persons holding these extreme views; but no allowance is made for the difficulties they may have had to contend with; frequently of limited and insufficient funds; of prejudices or selfishness on the part of squires or churchwardens; of dread on the part of the clergymen that certain arrangements or decorations in their churches may identify them with Tractarianism; and though last, not least, of the views and decisions of the bishop in whose diocese they build, and who happily, perhaps, for the purity of our religion, are often not inclined to ape the "form and tinsel" of Romish worship.

If the main purpose of the *Ecclesiologist* be now, un luckily, to puff a couple of friends, at all events the writers need not endeavour to pain or injure others, showing often not less malignity than ignorance, and entire want of feeling for art. I send you my name, and you will know that I am AN ARCHITECT.

#### PATENT LAWS AND POOR INVENTORS.

THE despondent murmurs of the "poor inventors" have been pretty loudly reverberated, and it is to be earnestly hoped that the doom of our vile and plundering patent laws will be shortly sealed. Amongst various other writers on the subject recently, a correspondent of the *Morning Herald* says:—"The intended industrial exhibition of 1851 has naturally directed attention to the defective state of the law for the protection of designs and inventions, and on the principle that the first sufferers are the first to cry out when the shoe pinches, inventors who are unwilling or unable to procure letters patent for their inventions, are sadly complaining that there is no efficient protection provided for them by the Provisional Registration of Designs Act. . . . Society reaps the great benefit—*ergo*, society has the strongest interest that inventions and improvements should be published; but society can hardly expect inventors to publish, unless inventors can retain the property of their inventions after publication, at least, for a much longer period than one year. I have already suggested a remedy for this evil; viz., to grant letters patent without stamp-tax or official fees, but as complete justice seems hopeless, I would suggest the following compromise between our right to have our scientific property protected without extra charge, and the practice of selling justice (very dear), which has prevailed hitherto:—That a patent right for three years be granted (on applica-

\* See Professor Hosking's Design, p. 295, ante.



tion, accompanied with an outline of the specification) without stamp, tax, or fees—the patentee to have the liberty to make and sell the thing patented—after which period of time he shall be subjected to a charge of 5*l.* per annum for the remaining term of the patent: neglecting to pay the annual tax, to incur the forfeiture of the patent right.”

In considering the advantages to be reaped from such a remedy, the writer remarks:—“As the patentees can at any time determine the patent by ceasing the annual payment, inventions which are not worth working would not long continue to be obstacles to the progress of improvement. This is a great evil at present, and its magnitude would be increased if patents could be obtained without cost, unless my proposal be adopted to compel patentees under some circumstances to grant licenses, so as to prevent patentees from using their patent rights in a manner to become a public nuisance.”

Another writer suggests that though to many a medal may be preferred to a money premium at the International Exhibition, the more substantial reward of a cheap patent, as in other countries, would be infinitely preferred by the mass of poor inventors. “To those whose business it is to design articles of mere luxury and fashion, the provisional registration may be of some use, but, as if in mockery of the more useful power of invention, those who cultivate the steam-engine, the locomotive, the loom, the telegraph, or any other important branch of national industry, are left without the slightest encouragement or protection. No doubt there will be many capitalists and manufacturers ready to catch all new ideas appearing at this exhibition, and mere operative skill will be recognised: but what encouragement is there for the intellect—the power of adapting new principles, or of making new modifications of old ones? To the mechanics of this country I would say—urge on every occasion the necessity of removing this prohibitory tax upon your intelligence, more especially since every recent act of the legislature tends to encourage and promote trade competition, and hence reduces, in the aggregate, the value of labour. Ask to be placed on the same footing as your fellow-workmen in other countries, with whom you will be compelled to compete—ask for the privilege of being able to help to raise yourselves—in fact, for a fair field and no favour,—and rely upon it this enormous and unjust imposition will soon be reckoned amongst the barbarous taxes of a bye-gone age.”

Mr. Dickens, an old enemy to “Patent-eaters,” gives, in his *Household Words*, by a poor inventor, what would be an amusing were it not a melancholy and disgusting detail of bandyings to and fro between the Home-office, the Attorney-general’s chambers, Patent-office, Privy Seal-office, Home-office again, Signet-office, Clerk of Patents, Chancellor’s Purse-bearer, Clerk of Hanaaper, deputy Clerk of Hanaaper, Lord Chancellor again, and so on, paying every one as he goes, and, “note, nobody all through ever thankful for their money, but all un-civil,” till at length when his grain is well thrashed out of all the chaff, with six weeks’ work and lodgings to pay, he is let off at last by “fees to deputy chaff-wax,” making up the odds of 90*l.* 7*s.* 8*d.* for a patent for England alone, which yet remains to be run up to more than 300*l.* should it be desirable or possible to extend it to Scotland and Ireland. This plundering fee law is an infinite disgrace to the nation. Now is the time, however, for a long and strong pull all together against it, till the whole superstructure tumble to pieces about the ears of the chaff, and the deputy chaff, and all the other official absurdities heaped up as mere gross pretences for the legal plunder of the “brains of poor inventors.”

**YORKSHIRE ARCHITECTURAL SOCIETY.**—On Thursday, last week, a meeting of this society was held, when the Venerable Archdeacon Creyke was called to the chair. The accounts for the past year were submitted by the Rev. R. E. Batty, treasurer, and a balance of upwards of 200*l.* was declared to remain in hand to the next account. A grant of 15*l.* for the restoration of St. John’s Church, York, was made.

#### RAILWAY JOTTINGS.

THE number of passengers on the railways last year (says a correspondent of the *Morning Herald*) exceeded double the population of the United Kingdom, those travelling by third classes alone exceeding the whole of the population—young, old, rich, and poor. As, however, it can scarcely be supposed that more than one quarter of the people have availed themselves of the advantages of railway transit, it will follow that each passenger, on the average has gone eight trips in the year—a journey to any place and back with return tickets being considered generally as only one journey. The capital already raised by railway companies (says the same writer) exceeds one quarter of the national debt of Great Britain and Ireland, and would be sufficient to purchase the whole of the property in Ireland rated to the poor at twenty years’ purchase on the poor-law valuation. The aggregate amount of traffic on railways in the United Kingdom during the current year shows a very considerable increase over the corresponding period of 1849. The published total receipts from 1st January to 29th September, 1850, amounted to 9,535,707*l.*; corresponding period of 1849 to 8,275,679*l.*; showing an increase of 1,250,028*l.* for that period. The receipts during the first quarter of 1850 amounted to 2,613,237; second quarter to 3,214,903*l.*; and third quarter to 3,697,567*l.*; being an increase over the corresponding periods in 1849 of 283,001*l.* in the first quarter; 422,301*l.* in the second; and 544,726*l.* in the third quarter. On the London and North-Western the traffic for last week exceeded that for the corresponding period of 1849 by no less than 8,108*l.* The increase in the passenger traffic has been 3,143*l.*, and in the goods traffic 4,837*l.* The increase for the fourteen weeks since the commencement of the present year has been 50,410*l.*—that is, at the rate of 3,600*l.* per week, or 187,200*l.* per annum. Owing to the reductions of fares between Mansfield and Nottingham, more than 1,000 passengers, treble the usual number, passed between the two towns last week. Nearly 20,000 persons have visited Southampton, Portsmouth, and Salisbury, by the cheap excursion trains during the last two months. Parties were taken by a great excursion train lately from London to Edinburgh, Glasgow, and back, upwards of 800 miles, for 17*s.* 6*d.* An experimental reduction of first and second class fares and day-tickets has been made to and from all stations on the Syston and Peterborough branch of the Midland. The Railway Commissioners have remitted the tax on excursion trains where they carry passengers at less than a penny a mile. During a recent excursion from Gloucester to London, with about eight hours allowed in the metropolis, it was found possible to travel from Ross to Brighton and back in 24 hours; allowing one hour and a half in Brighton, and three hours in London, and travelling a distance of 350 miles. Herpath, speaking of railway prospects, says, “The conclusions we come to are these, that railways were made too fast for resources of the country, when the trade was so much depressed, and hence the continual sinking of the mileage traffic. The course, however, is now turned, and railroads are beginning to feel the elasticity of the trade of the country. Though above one-fifth of new miles of railway have been opened during the present year more than existed in the past, the traffic per mile has diminished scarcely perceptibly, or at the rate of 54*l.* per mile only. In other words, though the length of lines opened has been increased nearly 21 per cent. so great has been the increase of trade, that the mileage traffic has diminished only about 3 per cent. If, therefore, we can get the capitals closed, and keep men a little honest, there is very little doubt that railways will eventually be good paying properties at par, much less at the prices at which most of them now are. The present pay, we admit, is bad, and has been brought about as much by shareholders’ madness in 1845 as by directors’ extravagance. Even at this day, notwithstanding the woful experience they have had, shareholders at meeting are little better than a flock of sheep.” The Great Northern are about to erect a large locomotive depot at Peterborough, similar to

those at Wolverton and Swindon. There will be between 1,000 and 2,000 persons employed. The South Devon Railway Company lost 364,000*l.* by the atmospheric bubble. The cost of the high level bridge at Newcastle, as far as we can learn, is the following:—Bridge and works, 360,000*l.*; approaches, 100,000*l.*; property, 120,000*l.*; total, 580,000*l.* On the Drumlairig contract of the Nithsdale Railway the viaducts of Carron and Enterkin were completed last week. In honour of this event, the men dined together on Tuesday week, in the Freemasons’ Hall, Thornhill. The Treasury have advanced 130,000*l.* to carry on the Waterford and Limerick Company’s works during the winter, and the number of workmen, now amounting to 300, will be greatly increased. After four years’ labour the great tunnel through Mount Carioso, on the Leighorn and Florence Railway, has been completed. The Austrian Ministry of Trade and Public Works have offered a prize of 20,000 imperial ducats for a locomotive, the most suitably constructed and adapted to convey goods and passengers on the railway of the Semmering Mountains, and 10,000, 9,000, 8,000, 7,000, and 6,000 imperial ducats for the five next best. The Britannia Tubular Bridge is now complete in all primary respects. The down line through it was opened on Monday, after the tubes were tested with 280 tons of coal in twenty-eight waggon, besides two locomotives. The deflections were only three-quarters of an inch. The train was then taken about a mile distant, and shot through at the utmost possible speed, and the deflection was found to be sensibly less in the way of undulation than when the load was before in the tube. The deflections are nicely observed by means of a water-gauge. Messrs. E. and L. Clark state that the heaviest gales through the Straits do not produce so much motion over the extent of either tube as pressure against the side of the tubes by ten men; and that the pressure of ten men keeping time with the vibrations produces an oscillation of 1½ inch, the tube itself making 67 double vibrations per minute. The strongest gusts of wind that have swept up the Channel during the late stormy weather, do not cause a vibration of more than one quarter of an inch. When the two tubes are braced together by frames, which is now being done, even these motions, it is expected, will cease. The action of the sun at midday moves them a quarter or three-eighths of an inch. The daily expansion and contraction of the tubes varies from half an inch to three inches, attaining the maximum or minimum at about three o’clock a.m. and p.m. If a compass be held over any part of the bottom of the cells, the south pole is affected, and if over the top, the north is affected; and this is observable in all parts of the tube, and although their position is only about 10 degrees west of the magnetic meridian. The Earl of Bantry, it is said, has offered to bestow on any one who will construct a railway from Bantry to Berehaven a free gift of all the land on his estates required for the enterprise.

#### FAILURE OF IRON RAILWAY BRIDGE, TOOLEY-STREET SOUTHWARK.

AN iron girder bridge at the South-Eastern Terminus, London-bridge, gave way on Saturday last, under a quantity of bricks that had been piled on it. The following particulars are given in the *Times*:—“It appears that about two or three years since one of Warren’s patent iron span arches was thrown over Joiner-street, Tooley-street, Southwark, in order to afford accommodation to the increasing number of persons travelling by the railway. The span, which was about 60 feet wide, was supported by a number of iron chains, similar to those in use at the suspension-bridges. From the time the structure was completed up to Saturday last not the least deflection was perceptible in any part, but during the past week or so, in order to afford space for stacking the bricks used for building the arcade leading to the entrance of the station, some tons of brick-work have been placed on the roof of the arch. This seems to have been a greater dead weight than the arch was intended to bear, for all of a sudden, on Saturday morning, a report similar to the discharge of a cannon occurred. It was soon ascertained that the immense weight of bricks on the arch



had caused some of the cross-stays to split asunder, and for some time the entire demolition of the whole was expected. A number of men were quickly set to work, and having placed shoring poles under the arch, the dead weight was taken from the top; but so dangerous was the arch considered that it was found necessary to stop up the thoroughfare, and neither passengers on foot nor in vehicles have been allowed to pass through the street." Mr. Barlow, the company's engineer reports that there were 120 tons of bricks on one girder alone.

Surely Mr. Barlow must be in error, or has been mistaken by the printers. We have received five communications on the subject. According to one of them there were not more than 8,000 bricks on the arch. A second says, "the girders are about 11 feet apart, and the one that broke about 41 feet 6 inches long to its bearings; so you may form an idea if it was possible the girder could have been so loaded with bricks as he states, when, in fact, they did not extend on to the bridge more than ten feet. I question if Mr. Barlow would like to test the remaining girders with half the 120 tons he speaks so confidently of, added to the present formation: he surely must mean *cwt*s. and not *tons*, which would, in my opinion, be nearer the proof."

We shall probably know something more about it before our next publication. If the roofs and bridges here are being out as fine as the roof at the Bricklayers-arms station by the same company, to which we drew attention a few weeks ago, we shall have more failures before long, or theory is all at fault.

#### THE PRIORY CHURCH OF ST. PETER, AT DUNSTABLE.\*

The general plan of the present Priory Church of St. Peter, Dunstable, is comprised in a nave, two aisles, with a tower at the north-west corner. The nave is composed of seven bays, separated by piers, and niches, in two stages. The piers are of the ordinary character of the Anglo-Norman style; and consist of a series of cylindrical shafts, recessed, and semi-detached alternately, with cushion and carved capitals, and square abaci. The shafts on the internal sides above their capitals, have moulded arches, springing from them with hood mouldings, cut with a chevron ornament. Above these arches which open into the aisles, is a billet moulded string, formerly continuous, but now partially cut away. The centre shafts and the two quarter shafts on the faces of the piers detach themselves from the rest, and are carried up to the level of the springing of the heads of the clerestory windows: the two quarter shafts finish with capitals of carved foliage and square abaci, and have segmental arches moulded, turned from pier to pier, enclosing the clerestory windows. The central shaft, which continues up higher, is surmounted by a stone corbel and wooden angel, supporting the present tiebeams of principals. The roof of the nave is of oak, with the ends of the principals and tiebeams supported by carved figures standing upon a bird, resting upon stone corbels of late character attached to the central shaft. The principals correspond with the number of piers, and rest upon tiebeams. Each compartment between the principals is subdivided by an intermediate principal, and framed purlins, into twelve smaller compartments or panels, all of them deeply moulded, having enriched bosses of knots of flowers at the intersection of the timbers, and horizontal angles at the feet of the intermediate principals. The exterior of the western front offers a singular combination of three styles, Norman, Early English, and Perpendicular. The principal entrance to the church is through the Anglo-Norman doorway. The depth of the jamb is considerably increased by two piers on each side, on which are sculptured bas-reliefs, now almost obliterated. Four cylindrical shafts recessed, crowned by carved capitals with square abaci, form the jambs. The capitals vary: one represents David playing on the harp;—another a bishop, with mitre and crozier;—a third, two men with birds holding a scroll. Enriched arch mouldings spring from the capitals of the shafts.

\* From a paper read by Mr. G. S. Clarke at a meeting of the Bedfordshire Architectural Society, reported more at length in the *Bedford Times*.

The precise date of the foundation of the church is somewhat obscure. Prior Richard de Morins commences the chronicle of Dunstable by the following:—A.D. 1135, King Henry 1st died in the 35th year of his reign, in France, but was buried at Reading. He founded the Abbey and Monastery there and at Cirencester, and the Priory of Prato apud Rothomagus, and the Priory of Dunstable. One of the witnesses to the charter was Robert Blois, Bishop of Hereford, and he was not bishop till 1131; so that it may fairly be presumed that between 1131 and 1135 (the year of the death of the king) the Priory of St. Peter, for a Prior and 12 Austin or Black Canons, was founded at Dunstable. The register at Lincoln, quoted by Dunstable and Bishop Tanner, gives Thomas as the first prior, elected in 1196, and who died in 1202; but either the register must be defective, or the priory must have been without a head for 37 years, which is highly improbable. According to the chronicle, the almonry was erected in 1208; and in 1213 (the same year the town was burnt by accident) "Hugh, bishop of Lincoln, dedicated the church in the presence of knights, barons, abbots, priors, and many nobles, but not many of the common people." The dedication followed the completion of the entire edifice, and the latter must consequently have taken no less a period than 77 years to erect. This appears very long, but at the same time it will assist somewhat in unravelling the web of mystery that has hung over the west front of this church from time immemorial. Starting with Mr. Bentham's theory, and being assured from the statements in the chronicle before quoted that the church was cruciform in plan,—presuming that choir, presbytery, and transepts were of pure Anglo-Norman (the prevailing architecture at the time of the foundation and for 40 years after),—observing by reference to the church that the same style is to be found throughout the entire nave, including the great western door, and the three groined arches of the south aisle, to a certain level, which level is determined at the billet-moulded string above the nave arches, the following inferences are drawn:—First, that the monks, under the royal patronage, made a prodigious start at the outset, laid down the entire plan, and commenced the whole of the entire fabric from extreme east to extreme west; carrying up the work to the before-mentioned billet-moulded string below the present clerestory. Secondly, that the great scale of the work, and perhaps the troubles of Stephen and Henry the Second's reigns affecting their exchequers, they ceased labouring at the nave aisles, and concentrated their strength and resources upon the eastern portions, and completed them for the purposes of worship; then gradually advancing westward, they finished the two first bays of the nave to their present height. Thirdly, that these works occupied a considerable period of time, during which a change from Norman to Early Pointed, generally termed Transitional, had begun to display itself throughout England. Fourthly, that this change can be detected in all the succeeding bays of the nave; in the delicacy of the carving and foliage of the capitals, as well as in the character of the arch mouldings themselves, without materially affecting the character and outline of the original design. Fifthly, that this transitional character itself was then superseded by the more correct, because more developed, Early English or Pointed Style; as exhibited in the open gallery and upper portion of the west front, lower stages of the tower, and north-west turret. And lastly, that the whole church was roofed in, and finally completed for dedication, in A.D. 1213, at a time when the Early Pointed Style was in its zenith and greatest purity. Reducing these inferences into a more simple form of dates, they would be determined as follows:—The whole of that part of the church eastward of the nave, now destroyed—including the two first bays of the nave, their entire height, the remaining bays to the level of the billet-moulded string, the existing ground bays of the south aisle, the great western doorway, and interlaced wall panelling—was erected during a period extending from 1135 to 1170, and may be termed Anglo-Norman. The other portions of the billet-moulded string of the other six bays on each side the nave, exclusive of the clerestory

lights, which are insertions, between 1170 and 1180. The greater part of the west front, the west side of the present tower to the level of the quatrefoil band on the same, the adjoining turret to the level of the columns at the angles with painted arches over, between 1180 and 1213. The tower itself, the north aisle, a portion of the south aisle, the screens and carved wood work, the roofs of the nave and aisles, the massive piers at the eastern end of the church, all these are undoubtedly specimens of the architecture of the fifteenth century termed Perpendicular.

#### CHURCHES AND CHAPELS.

THE spire of Keysoe Church was struck by lightning lately, and rent to a considerable extent, and a large breach made over the window of the tower.—It is proposed to enlarge the church of St. John Moulsham, Chelmsford, by the projection of transepts, and of a chancel with chancel aisles of corresponding dimensions. The estimated cost of these works, by which 427 additional seats would be obtained, is about 1,300*l*, of which nearly 300*l*. remain to be raised. An equal outlay would be required for the completion of the entire plan by the erection of a tower, a steeple, and two porches.—The works at Pakenham Church have been completed, and the church is now enlarged by the addition of north and south transepts, the latter built at the expense of Lord Calthorpe. The repairs and enlargement have been under the direction of Mr. S. S. Teulon, architect, and executed by Messrs. Baldiston and Son, of Ipswich, builders, at a cost of 1,600*l*, the parish providing the carting.

—The restoration of St. Michael's Church, Cambridge, has progressed so far, that the church was re-opened on Friday last week. The aim of Mr. G. G. Scott, the architect employed by Trinity College and St. Michael's parish, has been, we understand, to restore the fabric, as nearly as could be, to what it was originally. The roof has been rebuilt of oak, with kingposts, &c. It is covered with Colley Weston slates, and surmounted at the east and west ends with crosses of the Decorated style. The piers and foundations of the building have been under-pinned where necessary. The pillars, where mutilated by galleries, pews, and tablets, have been restored, as well as the mullions of the windows, mouldings, stringcourses, throughout the church; the walls replastered, and the accumulated paint and whitewash scraped off. Arches resting on massive buttresses have been thrown across the north and south aisles, to support the large chancel arch, the piers of which were considered insecure. The flooring has been excavated, filled in with concrete, and ventilated, the church warmed with hot water, and the churchyard lowered to the basement moulding of the building. The east window has been restored to its original size and glazed with ground glass, while the west has been opened up by the removal of the organ gallery. The tower has been also thrown open, and the whole church has been repewed in carved oak. Many other minor restorations have been, and are still being, effected by Messrs. Quinsee and Attack, the builders. The carving was done by Mr. Rattee.—A new Wesleyan Chapel has been opened at Eaton Socon. It is in the Norman style, and adapted for 300 persons, according to the *Cambridge Chronicle*. Mr. Jubb, of Eaton, builder.—St. Nicholas's Church, Nottingham, has been partially restored and cleaned.—The new church of Liandilo has been opened for divine worship. The cost of rebuilding was above 4,000*l*, more than one-third of which Lord Dynevor and his family contributed.—Extensive alterations have been made in St. Peter's church, Eldad, Plymouth.—The Wesleyan chapel at Oldham has been enlarged, and fronted in the Doric style, on a plan by Mr. Simpson, of Leeds, architect: sittings increased from 800 to 1,200.

INDUSTRIAL SCHOOL, PLASKET.—We are informed that, in reply to the advertisement for designs, for St. George's Industrial School, proposed to be built at Plasket, Essex, for 350 children, the guardians received on Tuesday last fifty-six sets of designs, with estimates ranging from 4,500*l*. to 27,000*l*.



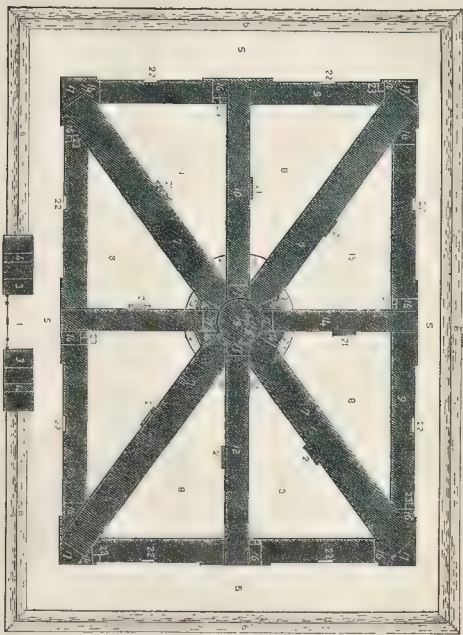


*Drawn and Engraved by J. H. C.*

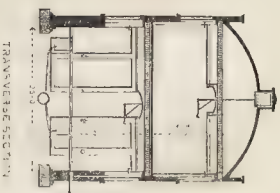
A PROPOSED ENTRANCE TO ST. JAMES'S PARK, AT CHARING CROSS.—DESIGNED BY MR. ALFRED BEAUMONT.

[See page 503.]



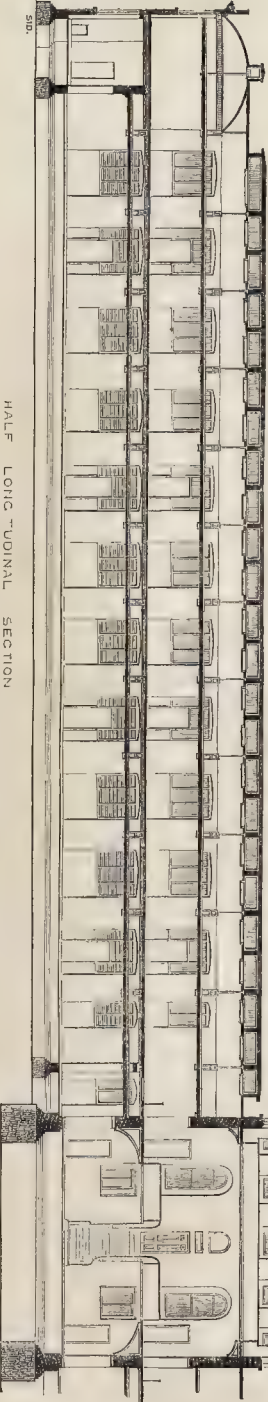


BLOCK PLAN



TRANSVERSE SECTION

0 5 10 15 20 25  
SCALE OF FEET TO ONE INCH



HALF LONGITUDINAL SECTION

PLAN FOR A FIRE-PROOF PUBLIC ABATTOIR.

DESIGNED BY MR. E. W. GOOCH.

REFERENCES.

- 1 Public entrance.
- 2 Entrance from market for cattle.
- 3 3 3 Offices.
- 4 4 Inspectors' and officers' residences.
- 5 5 5 Roadway round abattoir.
- 6 6 6 Slaughter-house for cattle to stand under.
- 7 7 7 Slaughter-house for calves.
- 8 8 8 Yards for ditto.
- 9 9 9 Lairs under stores open next yard, fitted up with manglers and racks.
- 10 10 Slaughter-house for sheep.
- 11 11 Yards for ditto, with luns.
- 12 Slaughter-house for calves.
- 13 Slaughter-house for pigs.
- 14 Slaughter-house for hares.
- 15 Yard for ditto, with luns.
- 16 Sixteen rooms for hides, skins, and offals.
- 17 Eight lifting-rooms, to raise meat to stores over slaughter-houses.
- 19 Round, or butchers' exchange, with stairs and gallery leading to stores.
- 20 Eight places for pannure.
- 21 Eight places for pannure.
- 22 Eight entrance-gates to cattle-yards.
- 23 Twelve water-closets.



## DESIGN FOR A FIRE-PROOF PUBLIC ABATTOIR.

PUBLIC attention being turned at this moment to the provision of abattoirs, we are led to give illustrations of a design for a fire-proof abattoir which was submitted by Mr. E. W. Gooch in competition to the Islington Cattle Market Company,\* and which, although not selected for reward, appears to have been generally commended. We give a block plan, with references; a transverse and longitudinal section, and the designer's own particulars.

The plan proposed is supposed to be large enough to kill and store all the meat that may be required for the supply of London, taking into consideration the quantity killed in the private slaughter-houses and the dead meat sent up from the country. The four large divisions with yards and lairs adjoining are for bullocks, two divisions for sheep, one for calves, and one for pigs, with a lair in each yard, fitted up with mangers, racks, water and other troughs complete. The lairs to be paved with two courses of tile flat paving in cement, with a fall into yard, and ventilated from the front with perforated iron panel-work built in the window openings. The yards to be paved with granite paving, with a fall for drainage to the centre. The store above the lairage is supported on the inside by iron columns.

In the slaughter-houses either sideways or across, bullocks may be killed, but for private individuals killing their own meat, they would be best fitted up in divisions, with a door into each from yard, allowing a space of about 12 feet 6 inches square each man to kill at cross corners: these are fitted up with double blood tanks, to allow of killing on each side of the posts that form the divisions upon any great emergency, but this would seldom be required. These divisions to be numbered. Hot and cold water to be laid on to each division, and a small crane with proper tackle fixed in each. The meat, when dressed, to be sent by a railway over head to the lifting-room, and taken away from the steam of the slaughter-house, immediately it is finished, to the store above.

There is a small four-wheel carriage connected with a bar in the centre, from which will draw a wrought-iron swivel brace bracket, with hook at end to turn right and left, to take the bullocks from any division from the crane to the railway. The carriage, with the bullock, to be pulled along by a twisted copper rope, so that the meat need not be handled at all; and, by using one of the new patent cranes, that weighs at the same time it lifts, the weight of each bullock, &c. could be ascertained at the same time, and at considerably less trouble. Each end of the slaughter-houses, with one of the hide or skin rooms, can be used for the offal. The blood-tanks to be made with small drain from bottom, and plug and chain similar to a wash-hand basin, to be used for cleaning out the same. Gutta percha stoppers to fit the surface channel, to turn the blood into the tank, to be provided for each tank. The windows to be formed with louvre boards, and the walls throughout rendered with Keene's cement, and trowelled to a smooth surface. Floors are paved with York stone, jointed in cement, with a proper fall to surface drains. The other slaughter-houses, for sheep, calves, and pigs, will require but little fitting-up different to the above description, with the exception of the railway, which will be suspended from the iron girders that support the floor above, and a blood-tank put in every division between the two iron girders, and no posts will be required as to slaughter-houses for bullocks.

The store-houses are carried over all the slaughter-houses and lairs below (with the exception of the lair next the market, which can be carried up if required). The floor is formed of three courses of tiles, bedded in cement, supported on small iron girders, resting on each wall, with small wrought-iron bars running from girder to girder, as shown in sections.

The floors are laid to a proper fall to the various gratings, to carry off the water to drains below. Each store is fitted up with a railway along the centre from end to end, supported

from light girders, to convey the meat from any division required, which can be continued round the outside stores. The stores can be divided off from girder to girder, with light iron bars, leaving a 5-feet passage along the centre, enclosed in the front with iron gate, lock and key.

Hot and cold water to be laid on to each division, and to be fitted up with dresser, top rails, and hooks for meat, and such other conveniences as may be required. The windows to be filled in with perforated zinc, with inside louvre boards to shut out frost. The roofs are formed with tile arches, with ventilators filled in with perforated zinc, and shutters to keep out frost, running the whole length of roofs, as shown in sections. Two or three doors to be made in every wing, to allow the butchers to receive their meat into their carts in the yards below. The rotunda is the centre of communication from every wing, with a landing all round; also a small side staircase, leading to an upper gallery, with easy access to any of the roofs. The dome is turned four tiles in thickness. The walls tied in by iron rods, with a suspension rod from the centre of top, and a circular iron frame to receive top of dome. The upper part is a ventilator. A residence is provided for a resident superintendent or inspector, who is to have charge of the abattoir. There are also four offices, and if the officers are required to sleep on the premises it can easily be arranged. The cost would be from 15,000*l.* to 20,000*l.*

## THE INTERNATIONAL EXHIBITION.

On Wednesday, the 23rd, there was a general meeting of the Metropolitan Local Commissioners with the Royal Commissioners at Westminster, to consider how best to supply deficiencies in the returns made, when 150 gentlemen attended, representing a large amount of intelligence and knowledge. Amongst the matters wherein deficiencies at present exist may be mentioned door-springs, jannping, built work (what is Clerkenwell about?), iron, maps and charts, and ornamental papers. A large model of the building was exhibited, in which, as we fancy will be the case in execution, the extra height of the transept produces an unsatisfactory effect. —Opportunities will be afforded for shewing pavements, parquetry works, fountains, ceilings, and other similar objects, in preparation for the Exhibition, as parts of the decorations of the building. The spaces, which may be filled with scagliola, cement, and other wall decorations, will be 14 feet high, with semi-circular heads, and 8 feet wide. Parties wishing to exhibit decorative railings may obtain the necessary information by applying to the Executive Committee. —Amongst the specimens from Ceylon will be a fine collection of Singhalese carvings. —The commissioners will supply steam-power to exhibitors gratuitously. —The building is being proceeded with rapidly, and offers several points of construction, which shall have our attention in a short time. —Messrs. Fox and Henderson have published a very large coloured lithograph of the building, the best yet issued. The shop-windows are now filled with views of this structure, of all sorts and sizes; the majority of which, by the way, have evidently been copied from the view we gave.

## ENGINEERING AND ARCHITECTURAL WORKS IN IRELAND.

The Sisters of Mercy (Limerick) are about erecting a more extensive building than the present one for the accommodation of orphans. —The report of Mr. G. W. Hemans, engineer to the Midland Great Western Railway Company, states that the works on the extension line to Galway are progressing rapidly; from 8,000 to 9,000 men have been in constant employment during the summer. The cost of working the line is expected to be about 11,500*l.* A locomotive engine is at present working on the line at Athlone. The large bridges over the river Luck and the estuary at Lough Atalia are in a forward state of progress. The bridge over the river Shannon is also being erected: it consists of eight piers, 10 feet wide; in the centre is a bay 10 feet span, with bays on either side of 43 feet span; two larger bays of 165 feet in width, with segmental lattice-work, are at each side of the latter; and between these and the abutments

are bays about 43 feet span. —The Drainage Commissioners of the Board of Public Works have for the last twelve months employed 300 or 400 men in erecting an embankment from the town of Youghal to the extensive wooden bridge crossing the Blackwater, in the execution of which work many obstacles had to be overcome in consequence of the volume of water within the embankment and the pressure of the sea from without. The embankment, 2,303 yards in length, encloses a triangular area of 250 acres, the land being at one side, and the causeway to the bridge at the other. It is 6 feet wide at the top, and on the outer side a retaining wall of heavy stonework is erected. After having partially yielded several times, the works are at length secure, and the water will be let off through a floodgate. The original estimate for this work was 3,811*l.* 5*s.* On the 31st of December last 9,432*l.* 3*s.* 1*d.* were expended, and the estimate for its completion was 3,690*l.* Mr. Patrick Larkin, C.E., is superintending the execution of the works. —The drainage of the Glyde and Doo districts is rapidly progressing under the superintendence of Mr. Robert Manning, C.E.: about 1,000 hands are employed in the district. —The Commissioners of National Education have lately advertised for the erection of a district model school at Galway, according to plans by their architect. —The front building of the workhouse at Oughterard has been lately burnt. —The Poor-Law Commissioners are about building a new workhouse at Croom, co. Limerick, according to the plans prepared by their architect. —A lighthouse is in the course of construction at Kinsalehead, to supersede the present light on the old head. The new tower will be on a more prominent sea point than the present.

## PASSAGE OF WATER THROUGH PIPES.

THE explanation of your correspondent, Mr. Ryde, places the question of the flow of water through pipes, &c., in a greater dilemma than ever.

Hawksley's formulæ, he must be aware, have been often condemned, by certain parties, as exhibiting something like one-third less results than their practice dictates, and yet, according to Mr. Ryde's explanation, the practical experiments of the Commissioners of Sewers serve rather to corroborate Hawksley's calculations, as well as those of Beardmore subsequently made, and which approximate very closely to those of Hawksley.

All that appears, then, to have been established by the expensive experiments of the Metropolitan Commissioners of Sewers is that a main pipe, with five junctions at intervals, discharges a greater quantity of water than without them, a fact very well known before to hydraulic engineers, for this simple reason, that by the increase of hydraulic pressure you increase the flow of water in certain ratios.

That Mr. Ryde's reasoning and explanation differ from several authorities will appear evident by a few extracts from the Report of the Board of Health on Metropolitan Water Supply. At page 173, Mr. Medhurst states, as the results of some experiments he had been directed to make, that a 6-inch pipe, with an inclination of 1 in 100, will discharge 63½ cubic feet of water per minute (*not a word about junctions*), while the result, according to Hawksley's formulæ, is only 40½ cubic feet per minute (Beardmore's, 41'6). Again, he states a 4-inch pipe gave 23 cubic feet, the formulæ only 14'7 cubic feet (Beardmore's, 15). Again, he states a 3-inch pipe gave 11½ cubic feet, the formulæ 7'0 cubic feet (Beardmore's, 7'3).

In the next page he states that a 6-inch pipe, with a fall of 1 in 800, gives, by Hawksley's Tables, 14'2 cubic feet per minute (Beardmore's, 14'3), while his own experiments produced the result of 47'2 cubic feet per minute.

Phillips, in his evidence before the Metropolitan Sanitary Commissioners, 1847 (page 57 of report), states that Hawksley's formulæ for town drainage give sizes from three-and-a-half to five times greater than he found necessary in practice. In this opinion he was supported by the evidence of Austin, Roe, Ranger, and others.

I am quite aware that all that is known upon the subject of the discharge of fluids through pipes, &c., are the deductions drawn from the

\* The Islington Cattle Market Company have recently published a "Plan of the Islington Cattle Market with proposed Additions," showing that they can command an area for general purposes of 76 acres if required.



theories and experiments of Eytelwein, Prony, Dubuat, Genieys, Young, Smeaton, Leslie, and others, and lately by Hawkesley, Beardmore, and the Metropolitan Commissioners of Sewers, and all with pure water through pipes, &c.; but Mr. Ryde must not tell me that highly concentrated sewage, containing from twenty to thirty per cent. of solid matter, will flow as freely and without obstruction through pipes or sewers as pure water, because my experience has long convinced me to the contrary. This simple fact, it appears, is alluded to by Mr. Hale in his communication to the *Mechanics' Magazine*, wherein he says, "The conclusion arrived at is, that the requisite sizes of the drains can be determined near enough for practical purposes, as an important circumstance has to be considered in providing for the deposition of solid matter, which disadvantageously alters the form of the aqueduct, and contracts the waterway."

He further says, "It should be mentioned, that in the case of the 6-inch pipe which discharged 75 cubic feet per minute, the length being 100 feet, the lateral streams had a velocity given to them of a few feet per second, although he does not mention what that velocity was, which would have a sensible effect on the volume of water discharged; and the junctions," he says (five in number), "were placed at an angle of 35 degrees with the main line of pipe."

I do not think that experiments that were conducted under such arbitrary rules and regulations can be considered very trustworthy as data, when we take into consideration the ever-varying general principles and systems of town drainage.

BAYLIS.

#### WIDENING OF CHANCERY LANE.

MR. TAYLOR, of Chancery-lane, to whom the public are chiefly indebted for a determined endeavour to improve the opening, has published in form of a pamphlet what has been recently written on this subject in the daily papers and *THE BUILDER*. We have had a view of the present state of things at this narrow bottle neck, as the *Daily News* has graphically described it; and certainly there is nothing more wonderful in the disproportionate issues from a conjuror's bottle, than the disemboguing of cabs and omnibusses through this narrow strait. The present opportunity of abating such a nuisance could not have been more favourable, though it had been purchased expressly for the purpose at an expense of 30,000*l.* or 40,000*l.*, as such an opening will certainly cost hereafter, if the present opportunity be not seized on, as it ought to be, in order to effect the same improvement now at less than a twentieth part of that cost. It has been urged that the west side of the lane is that which ought to be widened, and not the east, the corner of which is at present cleared for building; but besides the evident fact that a widening of both sides is desirable, there is a good reason why the east side in particular ought to be widened and rounded off. It will be found that the main bulk of the traffic is in omnibusses, cabs, &c., the usual route of which tends all to the east in issuing from the lane into Holborn, Gray's-inn-lane, &c.; and *vice versa*, it is chiefly those vehicles just before choked up in Middle-row, Holborn, which press into the lane on the east side. Here, then, there is urgent reason to widen and round off the street at the very spot now cleared; and as for the additional couple of houses, if such rubbish merit so respectable a title, that would require also to be set back or refronted, they are already in a perfectly ruinous state, as officially reported on, and one of them has a shore as an ornamental pillar in the middle of its one pair front, besides two or three more behind. Mr. Taylor has lately addressed the benchers of the Society of Lincoln's-inn individually, and Prince Albert, as their chief, upon the subject, but it will not be till the 2nd proximo that an official opportunity occurs for its consideration. It is earnestly to be hoped that it will not be then too late. We willingly paid a tribute to Lord Radnor's liberality in giving up a small area at the back of one of the houses; but we regret to find it said that "He refused to treat with the Commissioners for the ground previous to the lease being renewed, and until he had secured his im-

proved ground-rent, and increased the value of the ground in the lessee's estimation, and to the public 500*l.* to 2,500*l.*, and perpetuated a nuisance which it was in his power to remove without injuring himself or his successors, for the Paving Board would cheerfully have paid full value for the ground, so that instead of a boon we have to thank him for a bone of contention." It is only eight feet of ground in front of a single tenement, tapering off from one or two more, that is wanted to convert a single-wheel way into a double one throughout the whole of the street, and although the principal lessee has been advised to ask 2,000*l.* for the whole, or 850*l.* for the half of it, doubtless the sum offered by the paving commissioners,—namely, 750*l.* for the whole,—would be found to go great way towards the sum that would ultimately be accepted. It will be a lasting disgrace to more than one party if so pitiful a sum by comparison with such a benefit should not be realized without more ado. A week of further delay and it may be too late, even with increased resources. Why Lord Radnor should not do it all himself for the mere self-interested improvement of his own valuable property in this lane, let alone the public benefit, it is hard to see: an enlightened self-interest would certainly prompt such an issue.\*

#### MEMS. PROVINCIAL.

PLANS are about to be got for a market at Clifton.—The Birmingham Gas and Coke Company, and the Birmingham and Staffordshire Gas Company, have announced reductions of price in their gas, the new prices, from January next, to range from 5s. 6d. to 3s. 6d. with five per cent. discount for prompt payment. Since the previous reductions there has been "an increasing consumption of gas," as acknowledged by both companies.—The Salford guardians propose to build a new workhouse.—The ratepayers of the township of Pendleton, Manchester, are memorialising the magistrates in favour of the erection of a new bridge over the Irwell, in place of the present suspension-bridge.—A chimney at Stockport, 85 yards in height, was recently struck by lightning, and one of the angles from the top downwards, about 20 to 25 yards, "cut off as with a chisel."—The Liverpool United Gas Company have had a spacious new building for offices, workshops, &c., erected by Messrs. Haigh, of London-road. It is in the Venetian style, and presents to Newington a frontage of 108 feet. This facade is divided into two heights, the lower portion being rusticated work at the ends, and the centre part forming an arcade of seven divisions, receding nearly six feet. The arcade pilasters are oblong on the plan, sunk on the flanks, having moulded bases, capitals, archivolts, and key-stones. The centre, slightly projecting, is carried up two stories in height, and receives the masonry of the upper windows, with columns, pilasters, entablature, &c. The block of the building is finished with a stone cornice. The three centre divisions of the arcade form the entrance into the interior by a flight of steps continued in front of these divisions. This approach, and the area in front, are protected by a dwarf fence wall of stone, perforated for the admission of light to the basement, and completed with ornamental iron balustrades. Stone pillars are introduced into this fence wall for lamp supports.—A movement is in progress for the formation of a new market at Hulme.—Both of the Leeds gas companies intend reducing the price of their gas from 5s. to 4s. 6d.—At Darlington, the bridge across the Skerne, leading to the new park, is now finished, and the committee have offered a premium for the best design for laying out the grounds, about 20 acres in extent. The baths, too, are making rapid progress, the contracts for the remainder of the works having been let.—The Small Tenements Rating Bill, says the *Gateshead Observer*, has raised the valuation of the Monkwearmouth Shore from 8,477*l.* to 15,344*l.*, and reduced the rate from 15*d.* in the pound to 8*d.*—A school for boys and girls has been

\* A circumstance which has since transpired, namely, that a former paving board had been negotiated with by Lord Radnor for a portion of the ground, but could not entertain the application on account of the expense, would seem to require notice; but it is very little, if at all, affects the force of what we have now said.

completed at Layer Breton, Essex, at the sole expense of the Rev. Robert Wooding Sutton, the rector, under the direction of Mr. Watson, architect; together with a master's and mason's house, play-shed, &c. The style is that of Tudor Domestic architecture. The school has an open timber roof, stained and varnished; the walls of Portland cement, jointed; and it is heated by the pyro-pneumatic stove-grate. A sufficient space of ground is attached and planted, with space for a gymnasium, enclosed in front by an open ornamental wall, piers, &c.

#### THE IRON TRADE.

THE beginning of the end appears to be already in advent. "Just now," says *Aris's Gazette*, "there are no prices: it is useless any longer to conceal the fact—the iron trade is in a most deplorable state—the work of ruin has been going on for months to an extent not hitherto dreamt of; and, unless something speedily be done, or some change take place, the perilous condition of some most respectable concerns is such, as to place them beyond redemption. In this district the make for months past has been comparatively trifling, and the only hope for it now is to put a very large additional number of furnaces out of blast: the extent to which this will spread misery and pauperism amongst the improvident workmen it is almost impossible to estimate. The Welsh masters will go on producing until a sterner power compel them to hold their hand. The mischief already done in Scotland is so great that the final catastrophe cannot be very far distant: the production goes on with almost unmeasured pace: the price of the commodity has been as continually declining; and the amount of the overdrawn banking accounts is said to be enormous. A very general report is current that a single house in Scotland is in the hands of trustees for liabilities to the extent of no less than 800,000*l.* With such a type of the desperate condition of the iron trade, it is scarcely possible to predict what disasters are at hand." Thus it ever is: the Staffordshire masters would have the Welsh and the Scotch to give up the ruinous contest: lately the Welsh wished the Staffordshire to do so. Every one looks to his neighbours as the cause of all the mischief. But it is a fact, seemingly, that a mad increase of activity is being displayed in South Wales: works closed for four years are being reopened: increased numbers of men have already been employed, surveys undertaken, tramways formed, fresh levels opened, pits aired and ventilated! As for the last of these operations, there need be no hurry: there will be plenty of time to ventilate and air the pits: tramways out of all this mess are much more necessary: so are rational surveys of the present and prospective state of things, and levelling of a very fresh and new description indeed. The bond of brotherhood by which the masters professed to be united at quarterly meeting time has been also rent asunder in the general dissolution, or rather the nominal price system is now fully and freely acknowledged to have been but a rope of sand. "For a considerable time past," says the *Birmingham Journal*, "the impression has been very general that the official declaration of prices made at the quarterly meetings of the ironmasters was a mere formality, not binding upon those consenting to these rates, but a convenient maximum from which discounts might be made according to the necessities of the seller, or any other modifying circumstance. \* \* \* The absence of any definite result at the late meetings, and the issue of a circular by Messrs. Thorneycroft, on Monday last, have completely broken the prestige which attached to formal agreements about prices." That prestige was broken long ago. At a time when the quarterly dicta were quoted by every one as unquestionable authority, and when the masters were in the height of their imperious prosperity, we steadily exposed the hollow humbug of the system, and we may modestly claim the merit of having alone broken the prestige of such "nominal" prices. But latterly we ceased to war with those who came to rank with the unfortunate: our purpose was accomplished when the overweening conceit of a most "rampant" *imperium in imperio* was taken out of it. It is now rumoured that the reduction announced by Messrs. Thorneycroft, of 10s. a-ton, with 10s. additional on commission, "is the



commencement of a general reduction by the large houses, with a view to limit the sales effected by small makers." Yes: the "small makers" were ever a thorn in the sides of the "great masters," and thus it now is that the great masters are to be a deadly thorn in the vitals of the small and helpless, and that, as we lately said, "the weakest will go to the wall, and the longest purse prevail."

#### WIDE ESTIMATING.

THE following is a list of tenders received on Thursday last by the Directors of the London Conveyance Company, for new stabling for 200 horses, viz., twenty stables each for ten horses, and all exactly similar, to be built at the Westbourne Park, Paddington, under Mr. Pink, architect. The work consists of merely plain brickwork, &c., and the buildings only in part two stories high; and therefore one would imagine the value of the work could be arrived at with the greatest accuracy, especially as all the parties had the same quantities. Behold the result! A.

Jay and Co.....	£6,333
Hughes and Co.....	5,210
Hayward.....	5,199
G. Bird.....	5,129
T. Wilson.....	4,718
R. Thomas.....	4,075

Pray publish in your next paper the following tenders for repairs of two houses, Hanway-street, for Mr. Prowse:—

Potter.....	£149 10	For boarding and slating roof.	£25
Roper and Son.....	97 10		25
Gilham.....	94 12		15
Smith and Son.....	79 10		14

#### SUBSCRIBER.

The highest and lowest tenders for general repair to the Wesleyan chapel and premises, City-road, Mr. Pocock, architect, were—

Pickering.....	£560
Higgs.....	309

What is to be done? B.

#### Miscellanea.

THE SCULPTURE OF THE WEST END OF WELLS CATHEDRAL.—In the nine tiers of sculpture (says Professor Cockerell in a letter read at the last meeting of the Somerset Architectural Society) we have, first, nearest the ground, the foundation of all, the Prophets and Apostles,—“The glorious company of the Apostles praise Thee.” In the second, the Angels,—“To Thee all Angels cry aloud.” In the third, from the Creation to the Patriarchs, and the New Testament,—“The holy Church throughout all the world doth acknowledge Thee.” The fourth and fifth, the historical tiers (so deeply interesting), may be included in this “Holy Church.” The sixth, seventh, eighth, and ninth illustrate our belief, “That Thou shalt come to be our Judge,” in the presence of the Apostles and the nine Angels, and the Resurrection subjects, full of pathos and expression. Over the door we are reminded—“When Thou tookest upon Thee to deliver man, Thou didst not abhor the Virgin’s womb.” See also the soffite of the arch, The Ten Commandments. The historical (a surprising series) will be of the deepest interest, and the learned will not fail to recognise, for example, on the spiritual side, Ina, the First Founder; Edward Elder; the five Archbishops translated before 1200, from Wells; Brithelmus especially, holding his *Artizan*, and yielding it to King Edgar. The Bishops of Sherborne and of Wells. On the temporal side Edgar, without his crown; Athelstan; Alfred in the centre, the sun of this galaxy; Ethelfleda withdrawing the nuptial ring from her finger, &c., &c.; Edward Confessor; William the Conqueror; and Robert Courthose, *lifting up his cloak to show you his short legs*. All these, as proofs of identity, together with the regular succession which the catalogue exhibits, and the many other evidences the observer cannot fail to acknowledge, will, I think, satisfy every reasonable person on the correctness of my interpretations—the subject of long and so many delightful visits and contemplations in Wells.

WHITECHAPEL SANITARY ASSOCIATION.—A meeting of the Whitechapel Association for the Promotion of the Health, Comfort, and Cleanliness of the Working Classes, was held last week. The Rev. Mr. Champneys, rector of the parish, in the chair. The report dwelt at some length on the evils arising from an insufficient supply of water, which in Whitechapel would seem to be most defective and destructive. In the district, inhabited by 7,000 persons, there were 91 courts and streets badly paved. A great number of the houses were so dilapidated as to be wholly unfit for human residence, most of them being swamped in heavy rains. Several landlords, however, had agreed to co-operate with the society to remedy this evil. The report adverted to the frightful state of the lodging-houses in the district—in one of them 37 persons were crowded together in a space of 10 feet square—men, women, and children, all nearly naked. The smell was intolerable, and to add to it a large tub of ordure stood outside the door. The Board of Health state that 700 cubic feet of fresh air is absolutely necessary for life, while the inspectors of prisons allow 1,000 cubic feet for criminals; but these poor people had only 20 cubic feet each to breathe in. The subject, therefore, demanded the interference of Government. The report, which also suggested the appointment of a qualified parochial inspector, was unanimously adopted.

ROADS IN FRANCE AND ENGLAND.—The report of M. Darcy, divisional inspector of the Ponts et Chaussées, who has been to England to obtain information relative to the macadamized roads, has just been published. In this work we find the following particulars relative to the population, extent of the streets, &c., in Paris and London:—The total surface of London is 210,000,000 of square metres; its population, 1,924,000; number of houses, 260,000; extent of the streets, 1,126,000 metres; extent of the streets, not including the foot-pavement, 6,000,000 metres; extent of the sewers, 639,000 metres. The total surface of Paris is 34,379,016 square metres; population, 1,053,879; number of houses, 20,526; extent of the streets, 425,000 metres; surface of the streets, exclusive of the foot pavement, 3,600,000 square metres; length of the sewers, 135,000 metres; surface of the foot-pavement, 888,000 metres. Thus, in London every inhabitant corresponds to a surface of 100 metres; at Paris to 34 metres. In London the average of inhabitants for each house is  $7\frac{1}{2}$ ; at Paris, 34.

DOVER HARBOUR OF REFUGE.—With reference to the damage recently noticed by us, Lieut. Col. Yule, of the Royal Engineers, says, “In Volume VIII. of the *Professional Papers of the Corps of Royal Engineers*, I suggested and afterwards made experiments, to show that, for protection to such works while incomplete, if one spar can be so anchored, in imitation of reeds, as to resist the force of waves, so can hundreds, or any number: by means of numbers, as yet indefinite, still water will certainly be obtained. The late Admiral Sir Edward Owen informed me that, during a storm in one of the lakes in Canada, he found shelter to leeward of reeds. Supposing that the necessary number of spars were ascertained, they might be placed round a portion of the wall to be raised, and when that is completed, they can be taken up and anchored again at very little expense around the site of another portion of wall.” It appears, however, that the damage in the present instance did not affect the wall, but was confined to the contractor’s piles, cranes, and diving-bells.

STEAM TRAVELLING CRANES.—This problem, says the *Artizan*, has been satisfactorily solved by Messrs. M’Nicol and Vernon, of Liverpool. One steam crane has displaced two of the ordinary hand travelling cranes, which employed four men each. The following experiment will enable persons to form an accurate idea of its capabilities. Thirteen logs of timber, containing 1,050 cubic feet, were piled in a cess at one side of the yard. A plot of ground on the opposite side, 100 feet distant, was cleared. At one o’clock precisely the crane started, travelled 100 feet to where the timber was lying, hoisted a log, returned to the place whence it started, and deposited it on the ground in exactly two minutes. It immediately proceeded on a second journey, and at precisely four minutes ten seconds after one

o’clock it deposited the second log. The remaining logs were, one by one, conveyed over the distance, and in twenty-seven minutes thirty seconds the logs had been removed and piled in a cess at the opposite end of the yard. The average weight of the logs was 30 cwt., the total weight 19½ tons, allowing 54 cubic feet to the ton. The machine had travelled 2,600 feet, or within forty feet of half a mile, for half the distance carrying a load of 30 cwt., in addition to its own weight, besides having made 26 stoppages. During the whole of the operation only two persons were engaged,—the youth who directed the machine, and the man who fastened on the logs.

THE NELSON COLUMN.—Workmen have commenced preparations for fixing the third bas-relief illustrative of the battle of Cape St. Vincent, on the pedestal of the Nelson column. How much longer is the column to remain in its present unfinished condition?

PORTLAND HARBOUR AND BREAKWATER.—By the last Act of last session of Parliament, it is provided that out of a sum of 20,000*l.* paid for one of the harbour estates, 1,000*l.* shall be laid out towards constructing wells, pumps, and other works, for supply of water to the island of Portland. A further sum of 1,000*l.* invested for the Royal Portland Dispensary; 4,000*l.* towards the reduction or extinction of tolls on foot passengers at Portland Ferry-bridge; and the remainder applied towards schools, school-buildings, and teachers in the island, according to the direction of the Chief Commissioner of Woods and Forests.

LEICESTER LITERARY AND PHILOSOPHICAL SOCIETY.—The opening meeting of the present session took place on Monday in last week, Dr. Shaw, a new president, in the chair, when various gifts were presented, and amongst them, from the working classes of Leicester, a marble bust of Sir Robert Peel, purchased at a cost of a hundred guineas. Mr. Hollings stated that the archaeological section of the Society had uncovered five or six feet of a Roman pavement in a cherry orchard, which he hoped to see transferred to the Museum: the Society had voted 10*l.* towards its removal. Dr. Shaw then read a paper on “The Character of the Literary Taste of the Day,” in which he deprecated diffusiveness of study and pursuit as destructive of everything great, original, or creative in thought; and however laudable it was to popularize knowledge, he was of opinion that the results were rather imposing than salutary.

LIVERPOOL ARCHITECTURAL SOCIETY.—On the 16th inst. a meeting of this society was held at the Royal Institution, Mr. Charles Barber presiding. Several donations to the library were announced. Mr. Laker read a paper on “The Curve in Gothic Architecture.”

BEDFORDSHIRE ARCHITECTURAL AND ARCHEOLOGICAL SOCIETY.—A general meeting of this society was held at the Bedford Library on Wednesday in last week, Col. W. B. Higgins in the chair. Some new members were elected. The Rev. W. Airy called attention to a proposal for the union of five societies for publication of proceedings, which the meeting adopted on his motion. A grant of 10*l.* towards the repair of Dunstable Priory Church was made. The report of the council was then read and adopted, after which the Rev. B. E. Bridges read a continuation of his paper, “On some Distinctive Features of Christian as contrasted with Classical Art,” and the Rev. W. Airy one “On the Solemn League and Covenant,” illustrated by the exhibition of a copy subscribed at Swineshead, at the time of the rebellion, and which he had himself found hidden under a beam in the roof of the rectory-house.

GLASS-MAKING: NEGLECT OF WORK.—A “gatherer” to one of the “blowers” at Messrs. Chance’s establishment, at Hands-worth, complained of short payment of wages, 1*l.* 16*s.*, for which he summoned the firm, who, in defence, urged that he had been properly fined for short work, according to agreement, a circumstance attributable to wilful neglect, in consequence of not having been promoted, after fifteen years’ service, to be a “blower.” The complaint was dismissed.

THE GREAT BULL FROM NINEVEH.—This valuable relic of antiquity has been safely deposited in the British Museum. It is in good preservation, stands nearly 12 feet in height, and weighs upwards of six tons.







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E. T. ARMITER, 361, OXFORD-STREET, LONDON  
January, 1, 1890.



# The Builder.

No. CCCCIV.

SATURDAY, NOVEMBER 2, 1850.

**W**ednesday, the 9th of October, the fourth day of the *Volks-Fest*, or People's Feast, at Munich, the colossal statue of BAVARIA was inaugurated, in the presence of the ex-King Louis, King Otho, and thousands of people. It is situated in the Theresa meadow, at a short distance from the city, on what at first appears to be an artificial embankment, but is, in reality a natural step in the plain. It thus stands about 40 feet above the general level. The figure itself is 54 feet high, and its granite pedestal 30 feet. The background is made by a white marble Doric temple, or rather peristyle, consisting of a centre and two advancing wings (forming three sides of a square), called the *Ruhmeshalle*, or Hall of Worthies, intended to receive the busts of the great men of Bavaria. In the People's meadow, the place of their annual gatherings, is honour done to those who have benefited their fellows, inciting others to great deeds: and there, in front, stands their typified country, a quiescent lion at her feet, strength in repose, a sword by her side garlanded, and in her upraised hand the offered wreath to merit.

In our present number we give a view of the *Ruhmeshalle* and statue, which are approached, it will be seen, by a long flight of steps from the lower plain.\* We give also a plan. The temple (of marble from the Untersberg) was designed by M. Leo Von Klenze, and adorned with friezes by Schwanthaler. It is not yet finished, and will probably occupy two years in completion. It stands upon a lofty podium, rusticated: the whole extent of the front, including the wings, is about 214 (Bavarian) feet on the top step: the depth of the flank (comprising nine columns†) is about 92 feet: the face of each wing forms a tetrastyle portico, with sculpture in the pediment; and the whole number of columns is forty-eight. The depth of the inclosure, around which, on a continued pedestal will be placed the busts, is about 24 feet from the face of the columns to the back wall.

The statue was executed by Schwanthaler, in conjunction with Lazarini; and was cast by Mr. Ferdinand Miller, the nephew of Stigl-mayer, who, as director of the bronze foundry, was to have done it, but died just previously to the commencement.‡ Strange and sad to say, both Schwanthaler and Lazarini are also dead, and did not see the completion of this great work, the result of ten years' unremitting thought and labour. As Bulwer ob-

serves in one of his novels,\* "There is a terrible disconnection between the author's life and the man's life,—the eras of visible triumph may be those of the most intolerable, though unrevealed and un conjectured anguish. The work that delighted us to compose may first come to the world in the hour when all things under the sun are joyless." In the present case the disconnection is carried further,—he who is declared a victor is no longer here to receive the crown!

The head was cast in September, 1844; the bust in October, 1845; the remainder not completed until August, 1848. Both the *Literary Gazette* and the *Athenaeum* of last week, give, in very interesting articles, descriptive of the *volks-fest* and of the unveiling of the statue, particulars of the casting. The latter says:—"In casting the bust of the figure—the largest portion—the greatest difficulty had to be encountered. It was necessary to melt for the purpose 20 tons of bronze,—five tons more than had ever before been melted in the furnace. As this immense mass of metal slowly began to fuse, it began also to cake,—thus threatening to destroy not only the casting, but the whole furnace, with untold danger to life and limb. Six men had, in spite of the oppressive heat and the ever-increasing glow of the furnace, to take it by turns, night and day, incessantly to stir with long iron bars the molten mass, lest it should adhere to the furnace walls, and so bring annihilation on all. On the evening of the fifth day of anxiety, when Ferdinand Miller for the first time sought a short repose in his chair, he was suddenly aroused by his faithful and anxious fellow-watcher, his wife, with the cry of 'Ferdinand, awake! the foundry is on fire!' It was so. The ever-increasing heat of these five days and four nights had caused fire to burst forth among the rafters. To have attempted to extinguish the fire by water, with this molten mass below, would have caused the immediate destruction of the place. All that could be done was, by means of wetted cloths, to keep down the fire. This was tried, and the melting went on as before. Amid such danger did the casting of the bust take place about midnight on the 11th of October, 1845. 'Success' was shouted forth; a load of anxiety of many kinds fell from every breast;—and all then hastened to the complete extinguishing of the fire."

On the completion of the casting the artists of Munich entertained Mr. Miller at a banquet. The bronze was obtained by diving for the Turkish cannon sunk in the battle of Navarino: it cost 92,600 florins. The medium thickness of the casting is half an inch.

We have said that the height of the statue is 54 feet. A winding staircase leads through it to a chamber in the head capable of holding a large party of persons, who, through openings in the hair, can view the surrounding country. The face is equal to the height of a man, the body twelve feet in diameter, the arm five, the finger six inches, and two hands cannot cover the nail of the great toe. The whole is of a tawny gold colour, and its appearance is majestic and beautiful.

For this noble work Bavaria is indebted to King Louis, who has earned for himself a lasting reputation, and deserves the gratitude of his countrymen. Posterity will forget his foibles, and think only of the extraordinary results of his efforts to adorn and advance his country. The King, in his efforts to encourage the arts,

has been fortunate in obtaining artists of ability, in most cases, to carry out his views, eminent amongst whom stands M. Leo Von Klenze, the architect of the monument under consideration. We have a pleasant recollection of a meeting with this gentleman at Ehrenbreitstein, some years ago, when, with a sketch-book for a companion, we trudged the banks of the Rhine and the Moselle in search of health and information; and we will not omit the opportunity (long ago as the incident occurred) of acknowledging his good-natured endeavours to further our views on that occasion.

## CHARACTERISTICS OF STYLE IN ORNAMENT.

RENAISSANCE, CINQUE-CENTO, LOUIS QUATORZE.

On Friday, 18th ult., Mr. R. N. Wornum continued his lectures on *Styles of Ornament* to the students at the Government School of Design, Somerset House.\* The subjects of the present lecture were the modern styles, which, like the middle age and the ancient, he limited to three general divisions, namely, the Renaissance, Cinque-cento, and Louis Quatorze. After some preliminary remarks on four varieties of the Renaissance and two of the Louis Quatorze, into which he subdivided these two of the three modern styles of ornament, the lecturer proceeded to consider them *seriatim*. First, of the Transition style—the Trecento. The great features of this style are its intricate tracery or interlacings, and delicate scroll-work of conventional foliage, the style being but a slight remove from a combination of the Byzantine and Saracenic, the symbolism of both styles being equally excluded. The foliage and florage, however, are not exclusively conventional. Nicola Pisano, Andrea Taffi, Giotto, and their contemporaries, were the great masters of this style.

In the Quattro-cento, the next style, we have a far more positive revival. Lorenzo Ghiberti, was its great exponent or representative. Filippo Calendario, who preceded him, is likewise an important name of this period, as is that of Bregno, successor to Calendario, and contemporary with Ghiberti. Nature no longer supplied mere suggestions, but afforded, directly, exact models of imitation, whether fruit, flowers, birds, or animals, picturesquely or ornamentally disposed. Scrolled shield work now first appeared, as also grotesque arabesque. We still have Trecento interlacings as borders, and the scroll with all the fulness of the Roman arabesque. The Quattro-cento is essentially a religious style, although symbolism was generally superseded by actual representation. This is the real Renaissance.

This third modern style, to which the name of Renaissance by habit more particularly belongs, is essentially a style of varieties, especially in jewellery and in works in relief. French and Renaissance are nearly identical terms in relation to style in ornament. The mixture of various elements is one of the essentials of this style: these elements are,—the classical ornaments, conventional and natural flowers and foliage, man and animals, natural and grotesque, pierced and scrolled shields, tracery, and jewel forms. The whole history of art does not afford a parallel mixture of elements. Our own Elizabethan is a partial elaboration of this style, with a striking preponderance of strap-and-shield work; but what we term the Elizabethan was not thoroughly developed till the time of James I., when the pierced shields even outbalance the strap work. Such are the four varieties of the Revival. The

\* See page 522. We are indebted for the sketch from which our engraving was made to M. Kreuter, architect to the king, at Munich.

† The sketch next shows ten columns on the flank. But we are disposed to think the plan correct.

‡ The *Art-Journal* of current month, in the course of an article descriptive of a tour through Germany as to the preparations for the Exhibition of 1851, says:—"The Royal Foundry at Munich has produced greater works than any similar establishment; as the Twelve Statues of the Throneroom, the monument of Maximilian, the statue of Schiller at Stuttgart, that of Goethe at Frankfurt, of Mozart at Salzburg, besides a host of others, and finally, the crowning work, the Great 'Bavaria,' but it is probable that a long course of years must elapse before half the number of works may be again cast there. The Royal school of glass painting is also of recent institution, and here were executed the windows presented by the King to Cologne Cathedral. But this establishment is suffering from the general exhaustion under which others of the royal establishments are now labouring."

\* Ernest Maltrevers.

\* The head masters of the Central School of Design at Somerset House have recently sent a note to her Majesty's Committee of Privy Council for Trade, a report on the progress of the school for the year ending July last, from which it appears that the result of the late alterations is very satisfactory. The number of students has been greater than it has ever been, and the work of many of them of a higher class of design than heretofore. Various students have received commissions for designs, or permanent engagements as designers, from artists and manufacturers, among whom we observe the names of Mr. Bell, sculptor; Messrs. Wilkinson, Woolmans, Ackerman, Trollope, Cunliffe, Haselkorn, Gill, Whitwell, Underwood, Wilson, Brown and Son, and Clay, manufacturers. The report speaks in a complimentary manner of the exertions of the second masters, Messrs. Richardson, Burchett, Denby, Herman, and Deverell, and of the teacher of the thriving female school, Mrs. M'Nair. In conclusion, the reporters remind the committee of their own increased duties.



decorators of the Renaissance were the first artists in ornamental art: they suffered no limits or restrictions but those of harmony or beauty.

The Cinque-cento is the most perfect of all the modern styles, the most prominent style of the sixteenth century, and the real goal of the Renaissance. The varieties just spoken of are but its wanderings by the way. These came at last out of the excavations of ancient monuments at the commencement of the sixteenth century. The true spirit of ancient art was only now thoroughly comprehended; but with such capacities as those of Raphael, Julio Romano, or Michelangelo, no wonder that it started suddenly from its entombment into new life, and grew even into a more splendid development than it had ever known, perhaps, in the most gorgeous Roman period. The efforts of these masters, however, were at first little or no improvement on the works of the great Quattrocentisti, Perugino, Francia, Bernardino, Luini, and Pinturicchio. The Arabesque is the most prominent feature of the Cinque-cento. With this it combines in its elements every feature of classical art in its completed form, with the unlimited choice of natural and conventional imitations from the entire animal and vegetable kingdom, both arbitrarily disposed and combined. Another of its features is its beautiful variations of ancient standard ornaments, as the Anthemion especially. The guilloche or *speira*, the fret, and the acanthus scroll are likewise favourites, and occur in many varieties. The Cinque-cento, indeed, appears to be the special province of the curve, for the vortical, of rare occurrence, hitherto, is now constantly met with. The curve occurs occasionally as a simple screw: some guilloches are an intersection of two vortical curves: it is an admirable ornament for the representation of light and shade. It is in sculpture, perhaps, that we must look for the purest examples of this style, as regards the mere elaboration of form. The admirable play of colour in its arabesques and scrolls constitutes another chief feature in Cinque-cento ornament; the three secondary colours, orange, green, and purple, performing the chief parts in all the coloured decorations. The excellence of the best Cinque-cento designs, the lecturer thought, was much indebted to colour, because the primary are so subdued by comparison.

For a century after the development of the Cinque-cento there was little individuality in the practice of ornamental art: architecture itself was completely dominated by a mere classical pedantry. Towards the close of the 17th century, however, the Louis Quatorze, essentially an ornamental style, began to develop itself. Its chief aim was effect by a brilliant play of light and shade; colour, or mere beauty of form in detail, having no part in it whatever. This style, like most others of modern times, arose in Italy. Its great medium was gilt stucco-work, which, for a while, almost wholly superseded decorative painting; and this absence of colour in the principal decorations of the period seems to have led to its more striking characteristic, infinite play of light and shade. Exact symmetry in the parts was no longer essential, and came, in the Louis Quinze modifications, to be systematically avoided, and ultimately led to that debased version of this style, the Rococo. In the Louis Quatorze and its varieties we have the constant and peculiar combination of the scroll and shell, the anthemion treated as a shell, and a small scroll, sometimes plain and sometimes clothed in acanthus foliations. All its other elements are classical, such as in the Cinque-cento: the fiddle-shaped combination of scrolls is perhaps a legacy of the ordinary renaissance. The play of light and shade in sudden and varied contrast is so essential an element of the Louis Quatorze styles, continued the lecturer, that they do not admit, I believe, a single flat surface in any of their ornamental details: all are concave or convex,—perfectly smooth, but never flat. They thus contrast very strongly with the Elizabethan, in which flat surfaces in the details abound. In the Louis Quatorze these would be channelled or moulded. Still the latter is not altogether unfit for decoration in the flat, but it must be limited to designs on a small scale, and colours

will be indispensable: this is exemplified by the designs of Watteau. These are the last of the historic developments of ornament.

In this review of the ornamental devices of thirty-three centuries, said the lecturer, in his concluding remarks, we have certainly had every variety and expression with which the human mind is familiar. I have dwelt, of course, upon the leading styles only, and do not pretend to have explained more than the great leading developments of ancient, middle-age, and modern art.

In the early period, with the Egyptian, we found symbolism, richness of material, and simplicity of arrangement, or artistic crudity, as the prominent characteristics. In the second, or Greek period, we have general beauty of effect, and uniform excellence of detail throughout, everywhere displaying the highest artistic skill. In the Roman period we have equal skill, with a taste for a more gorgeous detail and general magnificence. In the Byzantine we go back to an almost fanatically exclusive symbolism, which, however, in the course of a century or two, is elaborated into a style of a very gorgeous general effect, partly owing to richness of materials; but as prejudice was gradually overcome, a comprehensive and beautiful style is developed; yet always displaying more skill in its general effects than in its details. The Saracenic is the same principle,—a gorgeous general effect without any peculiar merit of detail: it is made up of an infinite number of minute contrasts of light and shade and colour,—something like a formal flower-garden, wanting the simplicity and grandeur of natural scenery. In the Gothic, again, the last of the middle-age styles, symbolism divides the field with art, and induces much of that crudity of detail which must be the inevitable result of a divided attention. In the Renaissance, the herald of the modern styles, we have, at first, the natural vagaries of an unaccustomed freedom, which, however, eventually settled into a *bona fide* revival of the most finished style of antiquity, the Cinque-cento. Then came the final decline—mere love of display—gold and glitter: such is the Louis Quatorze,—still prodigiously clever in the means it took to accomplish its effects. The Louis Quatorze is more general in its aim than any style whatever: thus its details, provided they generated sufficient contrasts of light and shade, were of no individual consequence. Accordingly, we find, after a little time, that all detail is absolutely neglected, and, with it, all study; and in the absurd Rococo, the very natural result of this general neglect, we have designs made up of details so without meaning and individuality as to defy description. They are Rococo; we can come no nearer to them; and with this Rococo, the first term of existence, the last of the nine lives of ornamental art, expires.

With the nineteenth century has commenced a new existence for art, which promises well from its decided recurrence to individuality of detail: with a careful study of the elements, variety of detail will give variety of effect to the general arrangements: without this, our schemes will differ only in size or shape, but never in expression or effect. If we turn from the Rococo to our modern specimens from the works of Klenze and Gaertner, at Munich, we see at once the value of a studied detail,—the difference between the schooled and the unschooled style. This, I believe, is the great lesson we are to learn from a study of the characteristics of styles. Our designs want individuality: they are too general,—too much alike: we require something more than mere sprigs and colonnades: we want systems of detail, and systems of arrangement: a picture is not an ornament; but every flower, however simple, and indeed every leaf, is capable of being converted into an ornament, by the mere aid of repetition on a geometrical basis; and the same forms may be beautifully varied by judicious combinations of colour. Take a mere serpentine line, for example, clothed or foliated at regular intervals with any compound leaf, and in a colour complementary to its ground, you have a very excellent and simple ribbon pattern. Every leaf chosen will produce many different designs, all admirably adapted to the desired object, and all the work of a few minutes only. Such is the value of system in ornamental design, concluded the lecturer; but it is only by a knowledge of the

characteristics of styles, the standard types of all ages, that even system will insure that variety and individuality of design which alone will secure permanent success.

#### ON LINEAL EXPRESSION AND ARCHITECTURAL DESIGN.\*

##### THE SUBLIME AND THE PICTURESQUE.

So many have written on beauty, and it is such a vexed question, that I shall not treat further of it; but there is one quality so important, and generally so cavalierly treated, that I must say more about: that quality is Picturesqueness. This is a very general expression indeed of European use, and calls to my mind the works of Salvator Rosa—icebergs, rocks, ruins, withered trees, things jagged, irregular, angular.

Now, I think it can be shown that this quality bears more affinity to the sublime than to the beautiful, and frequently forms an important attribute of it.

The ancient Greeks were masters of the beautiful: they perfected it, up to now, in itself purely and in all its varieties. In their most majestic effects there is little, if anything, of that undefined terror which is justly held to be one of the essentials of the sublime. Repose is the pervading idea of all their noblest statues,—the Hercules, the Saturn, the Olympian Jove, the river gods at the Vatican, the Theseus, the Ilyssus, and, more strangely still, the Laocoon.

The very dreams of the race were benevolent. Terror was a quality of which they seem to have had no national comprehension, and considering this as essential to sublimity, I can fix on no work of theirs which perfectly produces that quality; and the same occurs as regards the picturesque: not that they never touched on the two, for the Laocoon possesses certainly sublime features, and the Drunken Fawn, Cymbal-player, and many of their rural gods and demons are picturesque, but in both cases it is a mixed quality combined with the beautiful, which is generally predominant. To find these characters more perfectly exemplified we must turn to a later race, and a later method of expression. How intimately the two are connected may be seen in Schiller's poem of the "Diver." The group above, the diver himself, the scene, a rocky promontory, are unmistakably picturesque, whilst the scene in the whirlpool itself is full of mysterious terror, and essentially sublime, the two forming one perfect composition to the imagination.

In Shelley's "Alastor" we have the same excellent combination of the two qualities:—

"Lo! where the pass expands  
Its strong jaws, the abrupt mountain breaks,  
And seems, with its accumulated crags,  
To overhang the world; for wide expand  
Beneath the wan stars and waning moon  
Islanded seas, blue mountains, mighty streams,  
Dim tracts and vast, rob'd in the lustrous gloom  
Of leaden-colour'd even; and fiery hills  
Mingling their flames with twilight on the verge  
Of the remote horizon. The near scene,  
In naked and severe simplicity,  
Made contrast with the universe. A pine,  
Rock-rooted, stretch'd athwart the vacancy,  
Yielding one only response at each pause  
In most familiar cadence, with the howl,  
The thunder, and the hiss of homeless streams.

\* See p. 464, ante.

One silent nook was there,  
Even on the edge of that vast mountain,  
Upheld by knotty roots and fallen rocks."

The distance here is unmistakably sublime,

mysterious, vast, and awe-inspiring; whilst the foreground, though not without sublimity also, is stronger in the picturesque, with its pine, rock-rooted, its homeless streams, knotty roots, fallen rocks, and accumulated crags. The same with the Alps; Mont Blanc itself being sublime, whilst the mountain pine, the broken branches, the twisting stream—rock-divided, the wooden chalet, with its breaks and galleries, and the goats on the jagged declivity for the foreground, are merely picturesque. Substitute a weeping willow or aspen for the pine, a Normal Italian villa for the cottage, a stream meandering through grass-enamelled islets, the swan's home for the rocky burn, and some sheep on an undulating hill in place of the goats, and the sublime character of the whole would be materially

\* See p. 464, ante.



destroyed. Nature to herself is in this respect always true and consistent. It is in Nature almost only that we perceive the sublime, in the defiles and among the masses of the Simplon or St. Bernard. St. Peter's or the Pyramids would afflict us with a sense of our own littleness; but sublimity, unlike grandeur, does not require size as an essential feature; and if we find it in art—it is to Michaelangelo we must turn. We may observe it, I think most strongly, in parts of the "Last Judgment," some of the Sybils, and Jonah, in the Sistine chapel, the figures in the spandrels of St. Peter's dome, the Brutus, the Uffizi, and, above all, in the statues of Lorenzo and Julian de Medici at Florence. A mysterious dread is excited by all these works, but it becomes terribly menacing in the Medici. Now, the outlines of all these, and the celebrated statues on the Medici's tombs, contain much of the picturesque—much that is roughly and sharply angular—but of beauty, as expressed by the Apollo or Venus, little, if anything. Indeed, it is no detractor from this wonderful artist's merit to say that his idea of such beauty was of the faintest and roughest kind: had it been otherwise, he would not have been what he was, the expounder of the sublime.

We may trace the downward change to greater picturesqueness, still retaining much of the sublime in Tintoretto, who professedly practised his manner of drawing, continued by S. Rosa, who carried it in his ordinary works to actual picturesqueness, often verging on the merely fanciful. We have here a chain of picturesque outline which leads us to the sublime.

The graceful leads us up through the beautiful to the majestic, the noble, the grand; but pass that barrier, and the beauty, which decreased gradually as we ascended, will have almost disappeared. It is to this point Raffaello ascends, but his sense of the beautiful before the picturesque prevents his more than approaching Michaelangelo in the sublime; and of these two, the most perfect expressions of form, each in his way is the most perfect master.

It is the same, as far as my experience goes, in architecture. Gothic architecture being essentially picturesque, does often in our most noted European cathedrals produce the sublime:—

"How reverend is the face of this tall pile!  
Whose ancient pillars rear their marble heads  
To bear aloft its arched and ponderous roof,  
By its own weight made steadfast and immovable.

It strikes an awe  
And terror on my aching sight.

Give me thy hand, and let me hear thy voice.  
Nay, quickly speak to me, and let me hear  
Thy voice,—my own affrights me with its echoes."

Though much of the sublime and shadowy dread which characterises this passage, arises from the feeling of the person speaking, yet I am sure that only a Gothic cathedral could produce it; and it bears internal evidence of being a Gothic cathedral of which Congreve was speaking when he composed this fine passage (from "The Mourning Bride").

The architecture of Greece has little that is picturesque about it, as it stands for our consideration when restored, but is eminently beautiful, as far as architecture can be, in all its phases, in after times; but the original existing examples of that art being so few, and so much being lost to us, it is but fair to allow that it did probably express as much picturesqueness as may be found in its better known statuary.

Picturesqueness, then, so far from being an inferior quality to beauty, or synonymous with it (as I believe it is not unfrequently considered), is, I think, a most important and separate one; and seeing its close affinity with the sublime, the noblest character an artist can express should form an especial object of our study.

It seems to me that the architect should guard against the dreamy pleasure excited by what is termed the association of ideas. From this blinding cause have arisen many of the poorest imitations of the day. However much the artist may delight in identifying himself with the past, he should remember that it is lost; that the public—that the world—has its

tastes, habits, ideas, character, and life, as strongly shown and determined as they ever were in the history of mankind; and that he cannot drive us back to a period which, however it may suit his individual taste, is not our period. In vain shall a modern Deucalion cast stones behind him to vivify the dead—they will remain lifeless;—in vain did revolutionary France adopt the names and dress of dead Rome;—in vain does this or that man call us back to the days of a Henry or a Charles;—we will adopt the garments of no past age or nation. As we are, we are. Of what are we ashamed? Is it of the spirit of the age? It should be our glory and thanksgiving to have lived in this time—a time our fathers longed to see, for which our great men wrote and fought and suffered, and of which our architecture should be a type. What do such men seek in the past which the present may not afford them? But they turn their backs on us as dull and matter of fact, and carry that strength to the imitation of the past which should be used for the development of the future. The future antiquary will judge of these aught when he shall say that those who might have evoked the true spirit of art in these times, wasted their knowledge in the raising of false ghosts. In renouncing this pleasure of association of idea in architects, we do not wish to abjure the proper enjoyment of it, but only in so far as it leads to a bigoted belief in the proper existence of any particular style, or that in advocating novelty we seek to destroy the past or the existing. And in our study of those styles with which are connected such names as Palladio, Wren, Wykeham, Michelangelo, we may well love to be led and influenced by their example, for they were a noble and deathless race, whose spirits, though invisible, still exist, and by the strength of their genius still live to us at this day. Their courage, their opinions, their intellect and imagination, still influence us, excite, encourage, instruct, and delight us. By a careful study of their lives and progress, we ourselves are led on to the heights of excellence. "Serpens nisi serpentem ederit, non fit draconem." To these men we owe service not slavery, and of all servitude that of the imagination is most difficult to compass.

Much has been written of late on architecture, with much sense, acuteness, and fancy, but unfortunately the most popular authors have not been professional men, practically acquainted with their subject. Everything has been done to unsettle, but nothing to systemise the ideas of the students of the day. With all due deference to the studies of our predecessors, with all proper admiration for the styles of the past, our present object, the object of all professional leaders, should be to consolidate and arrange the knowledge which we are now in possession of, and from the lessons thus gained, and the examples thus given, to strike out a new path for the powers of the architectural artist, and bring back the art to its normal state, which is one of gradual but certain progression, founded on scientific and artistic knowledge, keeping a careful hand over the wild and extravagant fancies of the more daring minds, and guiding onward the unwilling and faltering progress of the more timid;—to teach that merit exists in all styles, and is irrespective of fashion, which is mutable and often unjust; that the principles of our art are fixed and certain; that however much rules may be altered, they are not to be despised or disregarded with impunity; that true construction is the vital principle of all progress; and that besides the excellent ornament we already possess, nature has still varied resources in store for our study; and, above all, that for the application of all these means, a careful study, a right appreciation, a practical knowledge of all art, is indispensably necessary, and can only be gained by an industrious use of the hand and eye as well as of the mind. J. B. W.

ORDNANCE WASTE.—The stables at Colesberg, belonging to the Cape Mounted Rifles, and built by the Ordnance at an expense of 1,000*l.*, have been sold for 40*l.* It is much to be regretted that so large a building of this kind, much larger than any other in Colesberg, should be sacrificed in this manner, when it might have been usefully appropriated as a schoolhouse or fever hospital.—*United Service Gazette.*

#### IMPROVEMENT OF "LORD MAYOR'S SHOW."

MR. GODWIN'S letter to the Lord Mayor elect,\* sketching the history of the show, and suggesting the desirability of rendering it more worthy of the time and country than has lately been the case, was referred to the Lord Mayor and Sheriffs' Committee for conducting the entertainment, and we may now state that it has been determined in consequence to attempt to make the present pageant one of more than usual interest. We trust that taste and good judgment will be called in to guide the endeavour.

We have received a number of letters from men with knowledge on the subject, all concurring in the suggestion. From one we learn that the cost of the day, including the dinner, has lately been 2,435*l.*, so that something satisfactory might surely be expected. Of this the City contributed 200*l.*, the Lord Mayor 1,112*l.*, and the Sheriffs a like sum between them. The item of charge for the men in armour was 110*l.* 10*s.* The cost of the banners, barges belonging to the companies, trappings for horses, &c., did not come into this sum. One city antiquary writes, that the principal knight, and his retinue, (should) represent the city standard-bearer. "Robert Fitzwalter held Baynard's Castle, to him and his heirs, on the tenure of being the city standard-bearer and leader of the civic forces in time of war."

The recent *Volks-fest* at Munich, mentioned in another page, afforded a proof of what artistic taste can do in similar cases, without large expenditure: the inhabitants of Au sent a model of their church, with its stained glass windows; the joiners a model house; a pavilion of Byzantine form, drawn by richly caparisoned horses, contained the bust of King Louis; the porcelain works afforded a collection of fine forms, and the car of the sculptors and artists was charmingly arranged.

#### "PUBLIC CONVENIENCES."

PERMIT me to congratulate you on the moral courage you have shown in regard to these matters.

What think you of a convenience at each cabstand, somewhat of the following plan, with a pent-house covering?



It need not occupy more space than one horse and cab. Where the cabstand is very long, there might be one at each end.

They should be under the eye of the waterman of each stand, who is himself now under the control of the police.

The water should not run into the sewers, but into a moveable vessel filled with sawdust, and changed every morning early.

As the enterprising farmers of the clay soil around us are beginning to appreciate the inestimable value of such a compost, I think a capitalist or two could be found to put up a few dozen of such conveniences without plaguing the parishes or interfering with the Commissioners of Sewers.

LEWIS C. HERTSLET.

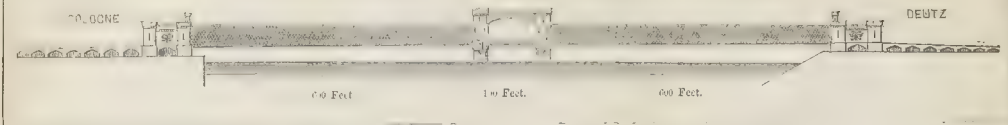
We have just seen plans for *accommodates*, with fire and police stations combined, by Mr. W. Austin, which seem very meritorious. In connection with the proposed *accommodates*, telegraphic wires are to be attached so as to ring an alarm of fire outbreak to the various brigade offices in the metropolis from any point or locality. The same notice of fire outbreak, riot, &c., to be telegraphed to all police stations. The erections are formed wholly of iron, and have reservoirs of water in the upper part of the construction.

HEIGHT OF THE NEW HOUSES OF PARLIAMENT.—In reply to a correspondent, the height of the water front of the New Houses of Parliament is in the centre 80 feet, and at the sides 70 feet. The present height of the Victoria tower 140 feet: its ultimate height is not yet determined.

\* See p. 493, ante.



## PROPOSED BRIDGE OVER THE RHINE AT COLOGNE.



## PROPOSED BRIDGE OVER THE RHINE AT COLOGNE.

In the spring of the present year, the Prussian Government publicly stated their desire to obtain designs from engineers and architects of every nation for the construction of a bridge over the Rhine, at Cologne, to carry a railway as well as the ordinary road and footways, from Cologne to Deutz, on the eastern bank of the river. The designs were restricted by certain conditions, of which the expense of the proposed construction was a prominent feature.

In August last, 62 designs were sent in to the Board of Public Works in Berlin, many of them being from England. The Royal Commission appointed to examine these designs rejected 41 in the first instance, as more or less inapplicable to the required conditions; and on further examination seven more were set aside from the same cause. The remaining 14 were then subjected to additional scrutiny, and three were selected for final preference. Of the three thus selected two, as we have already mentioned, were eventually adjudged deserving of the prizes, being the design presented by Mr. J. W. Schwedler, architect, of Berlin, and the design by Capt. W. Moorsom, civil engineer, of London. Of the latter of these we now give a view and the following particulars:—

The length of the bridge across the water is	Feet. 1,275
" of the approaches and land arches	740
Total length of the bridge and approaches	2,015
Span in the clear of each of the two main arches	600
" ditto of the lifting arch	100
Breadth of roadway for carriages over the bridge	25
" of railway for double track over do.	25
" of two footways on the upper floor	13
Width of piers in the river, two, each of	35
Height from the bed of the river to the underside of the lowest part of each arch	50
" from the bed of the river to the underside of the lifting arch when raised	104
" from foundations to the top of the towers	147
Strength of each main arch to resist a load distributed over it	Tons. 5,750
Cost of the whole of the works excepting the basement and foundations of the towers in the river	£211,240
Cost of the basement and foundations in the river, which the Government propose to execute themselves	25,540
Total cost if executed at Prussian prices	£236,780

If executed in England the cost would be one-fifth less.

The scale of the drawing is 300 feet to one inch.

The girders are simple repetitions of iron bars (rolled); and Capt. M.'s proposal to the Prussian government (which is still under consideration) is, to build one centre tower and one shore tower first, and place temporary scaffolding in the river between these, leaving the other part of the river open. The stages supported on this scaffolding are said to be ample for constructing the girder, which is previously fitted (but not rivetted) on the shore, and each piece marked. Capt. M. has found that 751 is the cost of scaffolding for a girder of this kind, 160 feet long and 40 feet high, above dry ground; and 3001. is the cost of ditto for a girder, 220 feet long and 80 feet high, above a river 9 feet deep.

**MONSTER GASOMETER.**—A large gasometer is being constructed at Philadelphia, in a telescopic form, with two sections. The dimensions are 140 feet diameter, and 70 high, and calculated to contain 1,000,000 cubic feet.

## THE CLAIMS OF THE GEOMETRICAL TO BE CONSIDERED A DISTINCT STYLE.

At the annual autumn meeting of the Architectural Society, Northampton, a paper "On the Progressive Development of Geometrical Tracery, and on the claims of the Geometrical to be treated as a distinct Style," was read by the Rev. G. A. Poole; the object of which was to prove that there is such a generic difference between that style and the Early English and Decorated on either hand that it ought to have a distinct place in an architectural system, and a distinct name in architectural nomenclature.

The writer said.—It is at once apparent that the styles of Gothic architecture are arranged very much with reference to the character of the windows. Right or wrong, this is the case; and right it certainly is in the sense of being obvious and convenient; though it might perhaps have been expected that some more organic part of the structure might have afforded the characteristics of style.

What do we see, if we follow the forms of windows during the last half of the 13th and the first half of the 14th century? We see them gradually deserting the narrowness and simplicity of the lancet form, till, at last, they have arrived at a great variety and complexity, involving proportionate width of opening, and the subordination of many parts. We see, in a word, a wide opening filled with mullions and tracery. And this tracery is composed, at first, of geometrical figures, following certain laws, and afterwards of figures no longer geometrical, and though not without law, yet of that free flowing contour which looks, at least, without restraint. Now, I think you will agree with me, that the first change and the last—the change from Early English to Geometrical, and the change from Geometrical to flowing Decorated—both demand to be treated as the differentials of a style; the first, that is, the mere introduction of tracery, as being, so far as windows are concerned, more important than the difference between Norman and Early English; the latter, the change of the laws which govern the formation of tracery, as being at least as important as any difference which separates Perpendicular from Decorated. In other words, Geometrical is more unlike Early English than Early English is unlike Norman; and so, *ex abundanti*, Geometrical and Early English should be separated; and, again, Geometrical is as unlike flowing Decorated, as flowing Decorated is unlike Perpendicular; and therefore, if the two latter should be distinguished, so also should the two former.

And yet the geometrical is almost always treated as transitional (which indeed every style but the first and last must be, in some sense; but I mean that this is so treated as transitional, as if it had no claim to a name and station of its own): it gets no better title than late Early English or Early Decorated, as the case may be; the term geometrical being only adjected to the generic term Decorated, as marking, not a genus, but a variety. If this had no practical result it would be little worth contending about, but I believe that it really does result in the too great neglect of this style, as a model, and, at the least, a point of departure for modern practice. A style which deserves, but does not obtain, a substantive position, is sure to be defrauded of more substantial proofs of the estimation in which it ought to be held.

The first impression conveyed by a Geometrical window and a flowing Decorated window side by side is, that while the former is obviously drawn only with the compasses, the latter seems at least to be drawn in some degree *libera manu*. Perhaps this impression, so far as the flowing Decorated is concerned, is hardly correct; but you will presently see that it results from certain appreciable causes, and indicates a real difference of principle in design.

Take the simple geometrical and an equally simple flowing two-light window. The eye at once detects the use of the compasses in the one, and the very centres from which the curves are struck: in the other no single curve is sufficiently simple to be referred, except with considerable effort, to its centre or centres: it seems, indeed, to be drawn without any mechanical aid. Take more complex arrangement, and still the same character is found carried out through three, four, five, six, seven, eight, nine lights. This alone, as it seems to me, is sufficient to demand a separation of the two styles; for, in speaking of design, this very fact, that the designer is put into so different an attitude as that of one who is limited wholly to geometrical forms, and of another who allows himself, or seems to allow himself the license almost of a sketch, is surely enough to separate between them.

But the free hand of the later designer had its rules too, and these rules were opposite to those of his predecessors, and this is really the differential which I shall propose. In designing a geometrical window the architect adhered to true circles, or to parts of true circles, never flowing off into another curve, struck from another centre. The ogee was unknown. Cusps, besides a characteristic so remarkable that I must refer to it, though parenthetically (*i.e.*, besides being *let into the soffit* instead of being *taken out of the chamfer*,—besides this, cusps) were of circles, or parts of circles, struck from circles within the greater circle, independent of one another, but with absolute dependence on the centre of the first circle: these points were cut off by another circle, concentric with the first, or that which circumscribed the whole figure. Hence a transparency of purpose and a precision of effect in this style never afterwards attained. All is complete in itself, and each member perfect, either as a part or as a whole,—a character which Professor Whewell abundantly recognises when he calls the Geometrical complete Gothic.

For the generic term, or that including the whole of that tracery which is formed of circles or parts of circles, secants and tangents of one another, but never flowing into one another, we cannot hesitate in taking that commonly in use, *i.e.*, geometric. To supply names for the two subdivisions is not so easy. It is now some six months past that I endeavoured to do this, in an article in the *Archæological Journal*, where I ventured to suggest the terms *Concentric* and *Excentric* to express the opposite characters of the two divisions. The first, you will observe, is of patterns formed of circles, or parts of circles, all the centres of which are within the resulting figure; and, as the figures are all uniform, even the subordinate parts must be repeated with the same necessary relation to the general centre. Thus, in a circle enclosing six other circles, grouped around a seventh (as at Grantham), the centre of the seventh is the same as the centre of the containing circle, and the centres of the six others all lie in the circumference of another circle drawn from the same general centre. All form one system, bound by a sort of centripetal force to one centre. The term *Concentric* is, therefore, at least, intelligible, as applied to this variety of geometrical tracery.

The other variety is formed by a combination of curves, some of which are struck from centres without the resulting figures; and, if the window be sufficiently complex, these other centres fall within other patterns in the same window, giving, by a centrifugal influence, to the curves to which they belong, a place in another system with another centre. And the term *EXCENTRIC* seems sufficiently appropriate to this development of tracery to this group of architectural comets. We have, therefore, —Geometric for the whole style, and *Concentric* and *Excentric* for its two varieties.

Directly, or by inference, I find others



agreeing with me in demanding that the geometrical shall be acknowledged as another style. Mr. Sharpe, for instance, in his work on "Decorated Window Tracery" (to which I cannot allude without adding a word of very high commendation), having defined the difference between the windows in what used to be called Early and Late Decorated, adds,—"We have only to carry our inquiries a step further, in order to satisfy ourselves that these points of difference are not confined to the windows alone, but extend also to the buildings to which these windows respectively belong; and, having arrived at this point, we shall not be long in coming to the conclusion that there exists a large and important class of buildings, characterised by the geometrical forms of their window tracery, which has hitherto been treated as belonging partly to the Early English, and partly to the Decorated style, but which is, in reality, distinct from both, and pre-eminently entitled, from the number and beauty of its examples, to separate classification."

Again, I find that Mr. Freeman, in his "History of Architecture," where he divides all Gothic architecture into two great classes, Discontinuous and Continuous, actually places his one broad line of demarcation, where at present all distinction is sometimes denied, between Geometrical and flowing Decorated.

#### FIRE AT THE TRAVELLERS' CLUB-HOUSE.

It is known and admitted that of all accidental fires, at least three-fourths occur by reason of the too close approximation of timber to the chimney-flues; and that on searching houses damaged by fire (but not consumed), the medium of communication is, in nine cases out of ten, a beam or girder, resting, perhaps, on a corbel fixed in the chimney-jamb; or else it can be traced from the plugs driven into the wits between the flues, which, when the chimney takes fire, being like touchwood, and desiccated by the constant action of heat, become charred, and so smoulder through the fissure caused by their insertion until the fire reach a crevice at the junction with the floor boards or skirting.

This slumbering and inert fire may last for hours, or even days, until the access of air gives it vitality, and so most commonly, long after fires in chimney-flues have been extinguished, the fire breaks out. Every architect and builder who has pulled down old structures is well aware that timbers are often found charred and literally burned through near old fire-places, and that the safety of the house has been due only to the confined seat of the element—i. e. to the absence of air to feed it. I have found oak girders and joists so burned; and in one case (a house in Park-lane) that the sinking of a floor near the chimney was caused by the combustion of at least eighteen inches of an oak beam—9 inches by 8! This house may be said to have been affected with inflammation in the ribs (a very common complaint), and there were no less than three such charred beams at different fire-hearths. That house was certainly crazy, having been 150 years built, but being only held on a short lease, it was refitted, and the diseased or tuberculated parts cut out, so that at present the cobble looks well to the eye, and may bide its time.

But how a modern structure like the Travellers' Club should have been so constructed in our days of improvement and solidity, it is hard to conjecture. Iron girders, cements, and incombustible materials are plenty and cheap—fire-proof houses the order of the day—and yet in a great club palace, where there was no stint of money, the most vulnerable part of the edifice must in this instance have been carelessly left exposed to the attack of the most insidious of enemies.\*

The use of cements for skirtings is a sure defence against fire through the medium of plugs; but the most certain safeguard against fire from chimneys is the terra cotta, or terra metallic tube. It is impossible that fire can be communicated to the wood work where these linings are used, for the earthenware tube or

flue being cased in masonry or brickwork effectually protects the wood fittings, even although they come in contact with it; and seeing that where the strictest surveillance is exercised by the clerk of the works, carpenters will drive plugs and then cover them with skirting, there seems to be no other mode of securing perfect immunity from the destruction of life and property than by using the ironstone or terra cotta flue. Buckingham Palace, Mr. Hope's mansion, the Marylebone and several other hospitals, have these flues throughout, and most public buildings now in progress employ them. Osborne and Windsor Castle have them also: in the latter many of the old chimneys are being gutted and so encased.

At the time the Travellers' club was founded (about twenty years back) these flues were not known, for the first building in which they were used was the Consumption Hospital, of which the Messrs. Bird, of Hammersmith, were the builders, and this was erected in 1843-4.

As fires occasioned by the ignition of soot in chimneys usually break out some hours after the flue is cleared and the engines have departed, and ordinarily by night, and when the inmates have retired to rest, life is more frequently perilled from a fancied sense of security; therefore it is the office of THE BUILDER, from his watch-tower, to admonish the public where lies the danger: by precaution you are secure. QUONDAM.

#### RAILWAY JOTTINGS.

THE London and South-Western directors are about to enter into contracts for the maintenance of all the ways and works of the main line and branches, of some 250 miles, for a period of five years.—Surveys for a line from Bangor, on the Chester and Holyhead, through the north-west of Wales, are now being made, and should the landowners be favourable, the line will be commenced at once, and made during the winter from Bangor to Port Dinorwic.—Mr. S. M. Peto, Mr. E. Leathes, of Normanston, and other gentlemen, visited Beccles lately for the purpose of fixing a site for the station of the proposed railway from Reedham to Halesworth. The party proceeded to Halesworth for the same purpose.

—The South-Eastern line from Ashford to Hastings and St. Leonard's, 28 miles, completing the coast communication throughout Kent, is now ready for opening. It has been eighteen months under construction, and has cost about 560,000*l.*, or at the rate of 20,000*l.* per mile for the double line of way. The distance from Ashford to Rye is about 16 miles, and the cost from Rye to St. Leonard's is about 252,000*l.* Towards Lyddham-hill and Hastings the works have been of a very heavy character. To avoid deep cuttings Mr. Barlow, the engineer, has lengthened the tunnels, of which there are four, of a total length of 3,685 yards, the Ore tunnel being 1,380 yards; Mount-pleasant, 220 yards; Hastings, 765 yards; St. Leonard's, 1,320 yards. The line between Tunbridge-wells and Hastings, which will complete the South-Eastern Railway system, is also nearly finished.—The Huddersfield joint station building is now nearly completed, and the Lancashire and Yorkshire Company have removed into their own portion of it. The refreshment-rooms are fitted up with gas cooking apparatus, crane joist from kitchen to dining-rooms, &c.—"It will scarcely be credited," says a contemporary, "that the threepenny fares of the Bayswater omnibuses produce a larger mileage revenue than the London and North-Western Railway. Yet such is the fact. The length of road which the forty-one omnibuses traverse is about seven miles, mileage receipt about 102*l.* If we took into account what all the other omnibuses which travel on the same road produced, the receipt would be infinitely higher." We do not exactly see the force of such calculations, however: mileage for seven miles in town is one thing,—for some hundreds of miles overhead throughout the country it is quite another thing: moreover, there must be many a seven miles' run on the North-Western, as implied in this very calculation, that would show a far higher mileage receipt than this on the one hand, while on the other, there must be shorter runs in the metropolis where the receipts of "all the omnibuses" would indeed be vastly "higher." But what does all this

come to, after all, in comparative statistics, unless it be one way of running up the Bayswater "scrip," while running down that of the North-Western? At all events, it is rather too much like the celebrated rule-of-three question—if a barrel of cucumbers cost 5*s.* what will a whole field of cucumbers come to?

—We are glad to perceive that the law still continues to discountenance and ignore the unconstitutional attempt of some of the railway companies to exercise the inquisitorial power of opening parcels, and of charging extra for carriers' parcels, which they have no right to do, although there is a clear determination on their part to seize and monopolise the business of carriers altogether, after dragging them off the old and obsolete roads, and on to the new public highways, of which these companies are really but the paid trustees. In a recent case at the County Court, Windsor, a verdict was given against the South-Western Company, and in favour of a carrier, on the ground that the Act did not prohibit the making up of several small parcels into one large one; and further that it gave them no power to open any parcel, without doing which it was evidently impossible for the company to declare with certainty what were its contents. Undoubtedly the subject is of great importance, and involves many grave points of consideration. Whether railway companies are to have the inquisitorial power of opening parcels to examine the contents; whether they are to be permitted to double with impunity the Parliamentary tariff; whether they are to overstep the lawful boundary of their constitution and become monopolist traders on a gigantic scale, are the questions raised in these proceedings.—A contrivance for the palliation or prevention of railway accidents has been submitted for experimental use to the principal railway companies by Messrs. Brett, the projectors of the submarine telegraph between England and France. The apparatus is a pocket communicator for the guards or engine-drivers, which, on the instant of an accident, can, by the aid of a small roll of wire, be so connected with any point of the main line of telegraph from the train or carriage by the guard himself, that communications may be easily sent to announce or guard against accident at every station on the railway. The idea of such a telegraph, as our readers may recollect, is not new. A modification of it, long since noted in our "Jottings," consisted in the permanent attachment of an indicator to locomotives or trains, so contrived with relation to the telegraphic apparatus on the line as to announce, by self-action, the advance of the train at fixed intervals onwards to the stations ahead.—Mr. Stephenson has examined the eastern and southern valleys of Switzerland, preparatory to forming a railway. He has, says the *Helvetie*, expressed the opinion that the best line would be one leaving Yverdon, following the marshes of the Orbe, passing by a tunnel through the Mormont at Entremonts to the valley of Venoge, and following that valley to the end.

**PATENT GALVANIZED IRON COMPANY.**—An injunction was recently granted at the Lord Chancellor's house, in *causa Sjordet and Others v. Synmonds and Waller*, to restrain the defendants from galvanizing iron or copper according to the plaintiffs' invention. The defendants showed no cause, being satisfied they could not resist the injunction. The sole interest of the company appears to be now vested in Messrs. C. W. Tupper and G. B. Carr.

**FOATY HOUSE.**—A leading architect in Ireland states that the design lately given in the BUILDER under this head,\* was not carried out. The drawings, we can only say, from which our perspective was collated, were forwarded to us, as such, by Mr. J. Morrison, brother of the deceased architect. On applying to Mr. Morrison for an explanation, this gentleman says, "The design, &c. sent to you forms one of a number of designs contained in the portfolio of my late brother, and I was, and still am, under the impression that the building at 'Foaty' was erected in conformity with it." Mr. Morrison has not a just appreciation of the importance of preserving the integrity of the BUILDER, or he would not have forwarded the drawings without being fully assured of their correctness.

\* See p. 450, ante.

\* On inquiry we learn that the fire did originate in a beam communicating with a flue, but, it is said, the beam did not originally communicate with the flue directly; and it is thought that a heavy ball used in sweeping the vent had broken the brick-work which was in face of the beam.



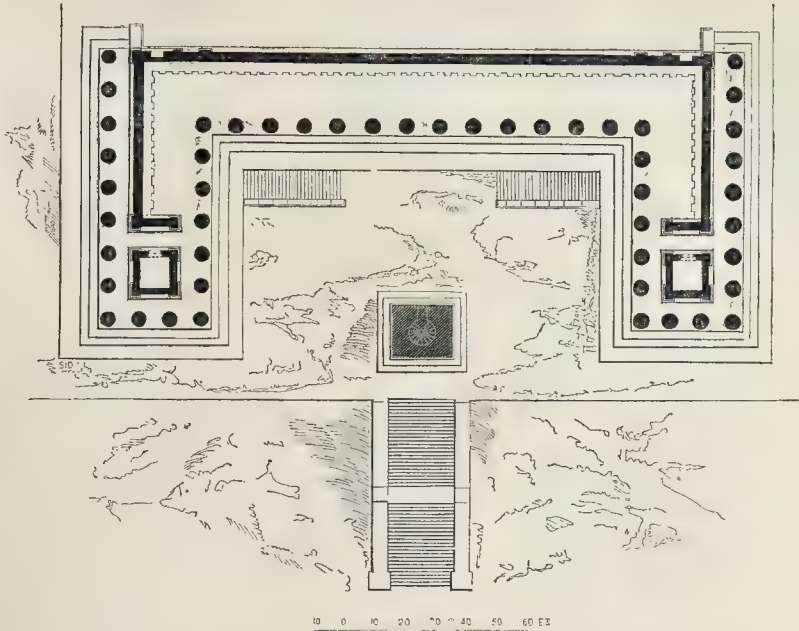


THE "RUHMESHALLE," AND STATUE OF BAVARIA, MUNICH.—LEO VON KLENZE, ARCHITECT; SCHWANTHALER, SCULPTOR.

[See Page 517.]



PLAN OF THE "RUHMESHALLE," MUNICH.



## THE BUILDING IN HYDE PARK.

ABOUT 900 men are at work, and very considerable progress has been made in the erection of the skeleton of the building. The overmuch trumpeting, however, on the part of the newspapers generally,—the daily statements somewhat in this style,—“We stop the press to announce the erection of two more columns and a girder,”—compared with what they usually say of works involving much more science and art, render accounts on our part unnecessary. We sincerely hope it may not throw the contractors off their guard by inducing too great confidence. There are several parts which will require their utmost attention, if they would avoid a disaster; and as to rapidity, with the present strength, moving at present rate, the building cannot possibly be completed by the time named.

The foundations for the pillars (in some cases much slighter than we should like to trust to), are formed in this way:—The ground having been marked out for a line of columns, pits are sunk on the site which each is to occupy. In general the depth of the pit is about three feet, the length two feet and a half, and the width one and a half. This space is then filled with concrete. Great nicety is observed in fixing the level of the surface of the concrete, which determines the height at which the column stands. The columns, having been previously subjected to the test of a hydraulic press, are placed upon trucks and drawn to the spot where they are to be erected, and where a foundation has previously been prepared for them. A “gin,” or temporary crane formed of three spars meeting at the top, is erected over these spots to support the heavy chain tackle by which the pillars are hoisted. The trucks being brought near these large cranes, all that is necessary is to insert two small temporary pins of iron into holes, which have been formed at the upper end of each casting, round which a short chain is slung, and passed over the hook of the tackle. The fall of the tackle is brought through a “snatch-block” or pulley fixed to the feet of two of the spars of the “gin,” and is then led off to the splinter-bar of a team of horses. The horses have only to move forward through a short space, and the pillar is hoisted above the place it is intended to occupy.

The machine constructed by the contractors, for the purpose of forming the wooden gutters

intended to be placed on the roof to convey the water, turns out of hand in about five minutes as much work as would occupy a man the whole day at least. The necessity of such an arrangement will be seen from the fact, that 24 miles of gutter will be required for the roof. The timber for the gutters is sawn into pieces of 24 feet in length, 6 inches in depth, and five inches in thickness. Three of these pieces are placed together firmly on the frame of a planing mill, where they are planed and squared. In this state one of the pieces is placed on a stand provided with rollers, with one end inserted in the iron frame of the grooving machine, where it is brought into contact with three grooving chisels. The centre one forms on the under surface of the wood a circular groove of three inches in depth and about the same in width, while the two others, one on each side, cutting in an oblique direction, form grooves of about half-an-inch in width and one in depth. The machine is worked by an engine of 20-horse power, and forms about five feet of the gutter per minute. It is not on the ground.

Two hundred glaziers have commenced operations. The glass used is brought to the ground cut of the size required, and we are told that each man can glaze 64 feet daily.

The smiths employed on the building struck a few days ago, for an advance of wages from 4s. to 5s. per day. Fresh hands were taken on.

## ARRANGEMENT OF ARCHITECTURAL COMPETITIONS.

We have received a letter from the Hon. Secretary of the Bristol Society of Architects, in reply to remarks on the propositions submitted by them. The writer says,—“Our propositions were framed to meet local requirements, and they were made public, in default of any others, as an incentive to competing members of the profession to consider the subject for themselves.

“Our proposition, No. 3, that ‘the successful competitor should be required to find respectable and responsible contractors to complete the different works for the sum specified in his estimate, and in default thereof to relinquish all claim to remuneration,’ has been much objected to by many individuals, but it was felt to be necessary as a protection and guarantee to our employers. In important cases, where a public exhibition has been made

of the designs, and also when professional advisers have assisted in the decision upon designs, the cost of the building has vastly exceeded the estimated amounts; as witness the cases of the Houses of Parliament, the Small-pox Hospital, the Middlesex Lunatic Asylum at Colney Hatch, and numberless others. I believe that nothing less than some such responsibility as is defined in our proposition can be effective in checking the erroneous competition-guesses at cost, which now take the place of scientific knowledge and calculation.

I do not suppose that any competitor would consider the question unsettled as to his design being chosen or not, after professional judgment and advice had been resorted to by any committee, and another design had been selected. But as our profession has no diplomas of competency in either science or art, it appears incumbent upon country practitioners at least to offer what guarantee they can that their employers should not be grievously misled, as they so frequently are. Many opinions may be advanced in opposition to our proposal; but I have heard no argument conclusive against it. We and all junior members of the profession of architecture have now to thank the Architectural Association for their well-considered regulations. Our Bristol Society have modified ours by them, but for local purposes we retain the publication of the names of competitors on their drawings. The credit attached to a design is, for years, often the only recompense to a young architect.”

## NOTES IN THE PROVINCES.

A CHAPEL has been recently erected at Rempton, near Loughborough, by the Wesleyans. It is in the Gothic style: Messrs. Broadbent and Hawley, of Leicester, builders.

—Tenders have been lodged for the erection of two lodges in the Arboretum, at Notting-ham, designed by Mr. H. M. Wood, the corporation architect and surveyor. The highest amounted to 4687. 10s., and the lowest to 3947. 19s.: Messrs. East and Hill’s tender, amount 3981., was accepted.—The foundation stone of a new church was laid at Amcotts, parish of Althorp, on Tuesday in last week. The style is to be early Gothic with lancet windows, and the cost 1,200l. to 1,500l. exclusive of parsonage-house. The church will accommodate 274 persons. It is to be erected



on the site of the ancient chapel of ease to Althorp, which fell last year.—Messrs. Warden, of New Holland, and Spendlar, of Barrow, have contracted to erect a building at New Holland for a school and place of worship, designed by Mr. Bake, architect, in the Gothic style, and sixty feet long by thirty wide, at a cost of 500*l.*, of which upwards of 100*l.* are still unsubscribed. There has been a sudden influx of a large population at this place in consequence of its becoming a terminus of the Manchester, Sheffield, and Lincolnshire Railway.—The price of gas at Grimsby is to be reduced from 7*s.* 6*d.* to 6*s.* 8*d.*

—Some substantial repairs, according to the *Cambridge Chronicle*, have been made at Bottisham Church, more especially in the tower and western porch.—The committee for repair of St. Michael's Church, Cambridge, are appealing to the public for means to meet the expenses of several of the works already noticed by us, which were not included in the safety, sanity, and utility of the edifice.—A large new organ has been built in Kirkstall Church, by Messrs. Forster and Andrews, of Hull. The instrument has three rows of keys, and a separate pedal organ. It contains thirty-seven stops, besides four composition pedals. Altogether there are 1,614 pipes in the organ, with room to add to their number if necessary.—We should like to consult with the sticklers for high rates on gaslight according to expenses of coals on the following case complained of by a correspondent. At Hitchin, Herts, when coals cost 26*s.* to 28*s.* a ton, the price of gas was 8*s.* a thousand cubic feet, besides 5*s.* a year for use of meter. Now that coal can be had by the Great Northern Railway at 15*s.* a ton, the price of gas remains the same as ever, although, *ex hypo*, it ought to be reduced by not much less than half the amount. Are the company really gainers, in an enlightened sense of self-interest, by refusing to reduce their price? We do not believe it, whatever they may imagine their clear gain to be on such a mere difference in the expense of coal. The calculation is doubtless a penny-wise pound-foolish one, as the inhabitants of Hitchin would very soon let them see, of a long winter's evening, were the company to tempt them with a fair opportunity.—Lord F. Fitzclarence is still engaged in improving Southsea Common, on which he is said to have expended at least 1,000*l.* exclusive of the cost of the esplanade which was chiefly defrayed by public subscription.—A new church has been erected at Deal and was to be consecrated on Wednesday last.—Carisbrook Castle, according to a Hampshire paper, is going fast to decay chiefly from neglect. The chapel roof has been blown off, and the rain is rotting all the interior fittings. Other parts of the castle are crumbling away without any thing being done to prevent the destruction of the whole.—The foundation-stone of the Worcester Diocesan Training School, at Sattleys, was laid on Thursday week before last. The building is in the Decorated style of architecture, and has already made some progress. The form will be quadrangular, of two stories, and the material is Hamstead stone, with Bath stone dressings. There will be 150 dormitories in the establishment, with all other appurtenances, and the cost is estimated at about 10,000*l.* Mr. Benjamin Ferrey is the architect, and Mr. H. C. Holland the builder.—In consequence of high prices and a monopoly of fittings by the Cardiff Gas Company, a new company has been projected.—A new church and new schools are being built at Aberdare, near Merthyr, and a site for a second new church has just been selected on Mr. Clive's estate.—The works at the Duke of Beaufort's dock, Swansea, and at the flat, have so far progressed as to enable the masons to proceed with the quay walls in the former, and with portions of the lock in the latter. The Swansea Water Works Company, in order to meet the growing wants of the town, have just commenced the erection of a second reservoir.—The Royal Institution at Liverpool have agreed to the transfer of their valuables to the proposed public library and museum there.—On Wednesday week the Bishop of Manchester consecrated the new church of St. Paul's, Ramsbottom, which has been built by subscription, and is in the early English style, cost 2,500*l.*

and will accommodate 600 people. The architects are Messrs. Holden, of Manchester.—The shopkeepers in Fargate, says the *Sheffield Times*, have prevailed on the board of surveyors to take up the Welsh sets with which that street was paved, and substitute the large blocks of gritstone more generally in use in this town. The reason is the same that influenced the shopkeepers in Market-street to oppose the introduction of Welsh sets in their locality—namely, that they occasion an intolerably loud noise when horses and vehicles are passing over them. Any one who has watched the experiment of the Welsh sets in Fargate—for they are of recent introduction in Sheffield—will be prepared to admit that the noise was at times quite formidable, but parties conversant with the subject say it was because, from a want of experience in setting them, the stones were placed too far apart, and consequently there was too much vibration. In Manchester, where the traffic is immense, these loud-sounding stones are in general use, and the noise is certainly not deemed intolerable; but that is to some extent explained by the fact that in Manchester the streets are much wider than in this town. In two others of our streets,—Spring-street and Love-lane—the Welsh sets are in use, and no one complains of them. The first cost of Welsh sets, delivered in Sheffield, is 16*s.* a ton. This is slightly in excess of the cost of gritstone, but it is computed that the latter will not wear more than one-sixth of the time of the Welsh stones. We have heard it stated that a further objection to the Welsh pavement is its slipperiness.—The body of Irthington church has been rebuilt. Efforts are now being made for the repair of the chancel.—“Mr. Simpson, of Heighington, formerly assistant to Mr. Bonomi,” says the *Gateshead Observer*, “has contracted for the maintenance of our county bridges for ten years.”

#### RAILWAY BRIDGE, HIGH-STREET, LEAMINGTON.

RELATIVE to the large bridge which is now being erected over the High-street, Leamington, mentioned in your journal of Sept. 23, I beg to hand you a short description, which will enable those who are desirous of investigating its constructive principles more clearly to comprehend them.

The bridge here spoken of forms a portion of a viaduct, about 22 chains in length, and commencing a short distance beyond Althorp-street, passing over the site lately occupied by the Royal Hotel; thence and over that on which stood Curtis's Baths, terminating in Orchard-street. In consequence of the meeting of the roads, the railway takes a diagonal course with reference to them, and has to span a considerable width.

To give a general idea of the structure, I must state that the clear bearing of the bridge is 137 feet; that each side is composed of three double tiers of American oak wallings, halved together, 14 inches by 7 inches, and seated on the abutments in iron shoes; between these longitudinal bearers is framed fir lattice-work, in scantlings, 9½ by 7; chamfered externally between lower and central wallings, and lined internally with 1½ inch ploughed, tongued, and beaded boarding; these lattice-work scantlings cross at right-angles, are let into each other 2 inches alternately, and bolted at each intersection: the wallings are also let into them 2 inches, and bolted, so that the sides form a series of trusses, not unlike the sides of the large suspension aqueduct which carries the canal over the Alleghany River, at Pittsburgh, in America. Between the central and top wallings wrought and chamfered vertical posts are framed, at distances of about 10 feet, and the spaces between them externally lined with beaded boarding, the same as before mentioned: a moulded iron gutter and wood valance are to be affixed to the eaves. The flooring is supported upon iron transverse girders, bolted to the oak wallings: these girders are cast with pockets in them, and carry wrought and chamfered bearers, 12 inches by 7, on which are spiked 3-inch planking, laid diagonally. The roof has cast-iron open-arched girders, and is covered with galvanized tinued iron, laid on wrought and beaded boarding. The raised part is to be glazed with rough plate-glass, and the upright

space between the iron and glass covered portion is to be occupied by an ornamental cast-iron louvre, for the purposes of ventilation. As a support for each extremity of the bridge a tower is erected of brick, and cased with Derbyshire and Temple Girtling stones.

In conclusion, allow me to add that I am disposed to regard the term tubular-bridge as a misnomer; it may, I think, very properly be denominated a lattice-bridge, and I beg to recommend it to the notice of those who have never seen a similar description of structure; it is worthy of inspection, and will well repay a trip.

THOS. E. KNIGHTLEY.

#### WORKS AND FAILURES AT LONDON-BRIDGE RAILWAY STATION.

THE question of the safety of the remaining iron girders over Joiner-street has been referred to two leading engineers, we believe, but we have not heard their report. There are six girders in all: the one that broke is the fifth from Tooley-street. The fracture is nearly close to the abutment.

An arcade is being constructed on the left hand side of the approach to the terminus. It will be similar to the Lowther Arcade in the Strand, with shops, and a large refreshment-room in the centre of the thoroughfare which fronts the terminus. The building, between 100 and 200 feet in length, has its basement in Tooley-street, whence it rises about 60 feet, divided into three stories, the upper elevation forming the arcade on a level with the railway, and the lower part in Tooley-street forming a range of ordinary shops. The front is to be in the Italian style, and the building is to be completed and opened by Christmas. A large number of workmen are now engaged with the station-works at this terminus, which it is said will become one of the largest in England. The station consists of a large covered-in platform, between 700 and 800 feet in length. The truss principals supporting the roof seem nearly 100 feet span. There will be waiting-rooms, booking-offices, managers' and secretaries' departments.

We have received the following letter:—

“The South-Eastern Railway Company appears to revel in ill-constructed work. This afternoon (Oct. 29th), about half-past three, the whole of the scaffolding crossing the road leading to the terminus of the North Kent and Greenwich station fell with a loud crash. It consisted of a temporary wooden bridge, erected for the purpose of conveying materials now being used in adding another story to the joint station. *Thousands of persons have been passing under this daily, and a large number of men were at work on the premises at the time of the accident, but providentially no person was hurt.* There was no particular pressure upon this portion of the scaffolding when it fell.

“SOUTHWARK.”

#### NEW NORTHERN SCHOOLS, ST. MARTIN'S-IN-THE-FIELDS.

THE new schools in Castle-street, Long Acre, near Mr. Hullah's music-hall, which were opened, as we said, on the 17th of October, form a large and important building, and will accommodate 800 children. We gave an exterior view of the building in our last volume (p. 451), and our readers will remember that the style is Italian-Gothic, designed by Mr. Wild: it is executed in brickwork—in some parts cut and rubbed, in others moulded for the purpose. The front, by the way, is an excellent piece of work, very creditable to the contractors, Messrs. Haward and Nixon. On the ground-floor there is a school-room 53 feet 9 inches, by 24 feet 6 inches, and 16 feet 4 inches high, with living rooms for masters. On the one pair story is the principal schoolroom, 97 feet long, and of the same height and width as that below. On the top a covered play-ground is formed: whether it will be found desirable to retain it, however, as such, seems to us doubtful. The roof is very light, partly wood, partly iron, and is tied down by upright rods of iron against the walls, to timbers in the floor below, to prevent any possible accident from the action of the wind. To the Rev. Henry Mackenzie, the vicar, the main credit is due for having obtained this important increase of school accommodation. There is a debt owing of about 2,700*l.*, which it is to be hoped some



of the wealthy friends of education will come forward to defray. The cost of the schools themselves has not been finally ascertained: the amount of the contract was 2,433*l.* but this has probably been exceeded.

## LONDON SIGNS.

Few casual observers are perhaps aware of the curious origin of many of the shop and public-house signs, and a still smaller number remember when most shopkeepers displayed signs, which projected far into the street, with iron supports, and upon which large sums were expended. It is stated in the *Gentleman's Magazine*, 1770, that the signs exhibited upon Ludgate-hill cost several hundred pounds.

In a paper (No. 28) of the *Spectator*, written by Addison, and in alluding to this ancient custom, he mentions the sign of a goat before the door of a perfumer, and the French king's head, at a sword cutler's. In the sixth plate of Hogarth's "Industry and Idleness," the sign of West and Goodchild, who are silk-weavers, is a rampant lion with a cornucopia on either side. In the same artist's plate of "Noon," the cook's shop has a Baptist's head; and in the plate of "Night," in the same series, the sign of the barber's shop is, besides his pole, a hand drawing a tooth, the head being in exquisite pain, having written underneath, "shaving, bleeding, and teeth drawn with a touch—*Ecce signum.*" In Shakspeare's play of Richard the Third (Act 3. scene 5), occurs the following passage:—

"Tell them how Edward put to death a citizen,  
Only for saying he would make his son  
Heir to the Crown: meaning, indeed, his house,  
Which by the sign thereof was termed so."

The person here alluded to, says Gray, was one Walker, a substantial citizen and grocer at the "Crown," in Cheapside. The well-known sign of the "Good Woman," which is a woman without a head, was a common emblem at oil shops, and it is supposed to have been originally started from a large oil jar, fancifully painted, so as to resemble a headless woman; and at the present day it is very frequently seen over the door, by way of sign. At ironmongers' shops, a dog licking a porridge-pot was the usual sign: an instance might, a short time ago, be seen at a large ironmonger's in the Blackfriars-road. The barber's pole, likewise, is one of the few remaining shop signs, and one which has caused much antiquarian discussion: it is supposed to represent (when barbers were surgeons also) the bleeding-stick, the black stripes being the tape wound round it. In the "Athenian Oracle," it is stated that the barbers' art was so beneficial to the public, that he who first brought it up in Rome, had, as authors relate, a statue erected to his memory; and it is further stated, that barbers were wont to hang their basins out upon poles, that wounded and weary travellers might see from a distance to whom they might have recourse.

Lord Thurlow in his speech concerning the Surgeon's Incorporation Bill in 1797, stated, that by a statute still in force the barbers and surgeons were each to use a pole, the barbers' to be blue and white striped, with no other appendage—the surgeons' to be similar, with the addition of a gallipot and red rag, to denote the particular nature of their vocation.

The sign of the chequers is of great antiquity, having been found at Pompeii, and it is still common. Brand considers that this sign was intended to make known that a game called "tables" might be played there, from the colour, which was red, and the similarity to a lattice: it was sometimes corruptly called the "red lettuce," which words were frequently adopted by ancient writers to signify an alehouse. Falstaff, in the "Merry Wives of Windsor," speaks of "yourred lattice phrases." In an old play called the "First Part of Antonio and Melida," the following occurs, "As well known by my wit as an alehouse by a red lattice." The lattice was converted into the green lettuce, which was formerly the sign of a public house in Holborn, and the green lettuce is still to be found in Billingsgate.

As recently as seventy years since, and perhaps even later, the shops in London displayed signs swinging across the streets, but from their impeding the free circulation of air

they were taken down and placed against the houses, and were, after a time, superseded by the present fashion, of the name and business being painted on the front.—G. J. RHODES.

## Books.

*On the Construction of Locks and Keys.* By JOHN CHUBB. Clowes, Printers.

THIS neat little illustrated volume is merely the "Excerpt Minutes of Proceedings of the Institution of Civil Engineers, vol. IX. by permission of the Council." It contains some curious and interesting particulars in regard to the antiquity, history, and construction of locks and keys. One of the most ancient forms of keys appears to have been something like the modern picklock, or, at least, like a sickle, and, like it too, was carried usually on the shoulder. A very dangerous and ingenious practice in modern burglary is here noticed, namely, the expeditious copying of lock wards by aid of a blind key covered with a layer of wax and soap, on which the impression is taken. Besides an account of the construction of his own locks, Mr. Chubb describes various others, of more or less approved construction, and in an appendix he gives some suggestions as to securing strong rooms, and also a list of patents and prizes. For security in banks, &c. the author, besides other safeguards, recommends a bolt, extending from the manager's bed-room above down along the iron door of the strong room. Could not bell wires, or other apparatus connected with bells, be secretly attached to lock work or doors, so as at once to give warning on the slightest attempt to pick the lock or move a bolt? In the discussion which followed the reading of Mr. Chubb's paper, opinions did not seem to be altogether unanimous as to the impossibility of picking tumbler locks, made even on Chubb's principle, although no one seems to have been able to say that any made by Mr. Chubb himself had ever been picked.

*An Essay on the Science of Pronunciation, dedicated to H.M., Public Opinion, the Queen of the World.* By an Advocate of Consistency. King and Co., Camden-town.

THIS is rather a "queer" book. The author, who is himself anonymous, although he declares himself an enemy to anonymous publications, as well as an advocate of consistency, is clearly an original, and here displays an immense mass of correlative research, methodically marshalled, and replete with critical acumen. Such a ripping up of modern authorities we never did see. But, however "erroneously" we may now be taught to pronounce many words in the English language, it is at least questionable whether a return to what might be critically held to be the only strictly correct mode of pronunciation, in many instances, would not in itself expose us now to the obnoxious charge of pedantry, to which this author himself gives little quarter wherever it clashes with his own foregone conclusions. And besides, he is himself an advocate of Progress, in which, where present practice is inconsistent with past authority, the practice, if at all general, becomes the rule, and the authority obsolete. Nevertheless, we do not mean to defend innovation as a rule, only we cannot consistently urge the force of past authority as a strait-laced fit, or an imperial measure, while, at the very same time, denouncing, as this same author does, many antiquated modes of pronunciation as "vulgar in 1850," the "more active as well as more exact" habits of which "wide awake" age he favourably contrasts, as the modern rule, with the "drawling pronunciations" of the past. We wish the author had given us his ideas on the subject of punctuation: if his practice be taken as a criterion of his principles (and he is himself, he says, the corrector of the press), he must have some very peculiar ideas on that score: e.g. "List of nearly a thousand words, For the pronunciation, or, spelling of which, see the numbers attached."

*Architectural Sketches in Italy.* By T. C. TINKLER, Architect, Blenheim-street, New Bond-street. No. III.

MR. TINKLER's third part consists of villa outlines, from Frascati; five gateways; bases of columns, and the villa on Monte Pincio, Rome,—an elegant composition.

## Miscellanea.

THE IODINE SPA, WOODHALL.—It will be seen by the advertisements which have recently appeared in our columns, that this pleasant spot, between Lincoln and Boston, on the Great Northern Railway, and within three hours of London, is now to be let on building leases. The Spa has become famous for cures effected upon individuals using the baths there, and drinking the water of this spring, which has only been discovered within the last few years. An interesting account may be found in Dr. Granville's work, "The Spas of England." An analysis of the water, made by Mr. West, of Leeds, shows it to consist of,—

	Grains.
Chloride of magnesium .....	11.3
Chloride of calcium .....	26.7
Chloride of sodium .....	1517.7
Sulphate of soda .....	2.1
Bicarbonate of soda .....	6.7
Iodine .....	.55
Bromine .....	8.35
Potash (a trace) .....	
Total grains per gallon .....	1572.7

When fresh drawn, it contains the following gases:—

Carbonic acid .....	17½
Carburetted hydrogen .....	4½
Nitrogen .....	19½
Oxygen .....	(none)
Sulphuretted hydrogen (a slight trace)	

RAILWAY RATING.—At the various Quarter Sessions just held, the important question of railway rating, in connection with the railway companies appealing against assessment, has come under the consideration of the magistrates with different results. In the case of the Midland Railway, on the section of their line from Derby to Leeds, arrangements have just been made with the seventy parishes along the line, by which a reduction of about one-third on the sums paid for parochial rates during the last six years has been agreed to. The magistrates have confirmed the rate of 500*l.* per mile in the town of Wolverhampton, on the Shrewsbury and Birmingham Railway against the claim of the company to be rated at only 150*l.* per mile, the amount of assessment on other portions of the line. The South-Eastern Company have been assessed at 500*l.* per mile on their Isle of Thanet line; but their appeal against being rated for their Chilham line has been resisted until the decision of the Court of Queen's Bench on the general question of railway rating is made known. An order has been served on the company for payment of the rates on their Folkestone line, otherwise a distress will issue; and an order has likewise been issued against the London and North-Western Railway for payment of the rate of 468*l.* per mile in the Saddleworth district, instead of 100*l.* per mile, as contended for by the company.

INSTITUTION OF MECHANICAL ENGINEERS.—The quarterly general meeting of members was held on Wednesday in last week, Mr. M'Connell in the chair, when papers were read, "On the Form of Railway Axles," by Mr. Thomas Thornycroft; "On the Inventions and Life of Wm. Murdoch," by Mr. W. Buckle, Soho; and "On Railway Trailing Stock," by Mr. W. A. Adams. Mr. Geach then stated that several gentlemen had announced their intention to subscribe 100*l.* each to the monument in honour of George Stephenson, the maturer of the locomotive.

THE HOME OF TASTE.—How easy to be neat! to be clean! How easy to arrange the rooms with the most graceful propriety! How easy it is to invest our houses with the truest elegance! Elegance resides not with the upholsterer or the draper: it is not in the mosaics, the carpetings, the rosewood, the mahogany, the candelabra, or the marble ornaments; it consists in the spirit presiding over the chambers of the dwelling. Contentment must always be most graceful; it sheds serenity over the scene of its abode; it transforms a waste into a garden. The home lighted by these intimations of a nobler and brighter life may be wanting in much the discontented desire; but to its inhabitants it will be a place far outvying the oriental in brilliancy and glory.—*American Paper.*



**ST. PETER'S CHURCH, NORTHAMPTON.**—At a recent meeting of the Architectural Society of the Archdeaconry of Northampton, the Rev. T. James read a paper on the works now in progress at St. Peter's, Northampton, from which it appears that the work of reconstruction has begun. On the demolition of the east wall, many elements of guidance to the proper style of restoration were found, and the result was that a Norman design for east end has been adopted in preference to one of decorated character, previously indicated by some more obvious remains, but incongruous with the old Norman part of the edifice. Remains of a decorated window, however, in the east wall were found, and it was ascertained that the bases of the two easternmost Norman semipiers had been worked out of richly sculptured stone, reused, and hence of still earlier date: the pattern was Runic, or, as with some, Danish. The extension of the east end of aisles and chancel to the ancient Norman limits has been adopted, though the estimate was formed on the narrower basis, and accordingly the interior cannot be completed without some six or seven hundred pounds beyond the sum yet subscribed.

**THE YORK BANQUET.**—At the dinner in honour of the International Exhibition, given at York, by the mayor of that city, to the Prince Consort, the Premier, and other members of the government, and the Lord Mayor of London and other civic and corporate authorities, the Prince delivered, as usual, a most effective and admirable speech. Lord John Russell also addressed the meeting, and the Earl of Carlisle, who, while deprecating the use of undue compliment or unreasonable expectation, said, "but may not he who has taken the foremost share in originating this great enterprise—may not all of you who have contributed to its effectual promotion, indulge the hope that you are giving a new impulse to civilization, that you are bestowing an additional reward upon industry, that you are supplying a fresh guarantee to the harmony of nations? Yes, my lords, the nations are stirring at our call, but it is not to the trumpet sound of battle, or to the shout of homicidal triumphs: we are summoning them to the peaceful field of a nobler competition, not built upon the superiority and predominance of one country and the depression and prostration of another, but one in which all may strive who can do most to embellish, to improve, and to elevate their common humanity." Brilliant as the turn out altogether seems to have been, perhaps nothing connected with it is more worthy of note than the fact that while the sayings and doings at the evening's banquet were at their climax in York, the words there uttered were being prepared in London for publication at the morning's reprint, and the proceedings of a meeting which did not terminate at York till after midnight, were reported in the London papers even before sunrise.

**CUTTERS OF LEATHER AND OTHER MATERIALS.**—We lately inspected two machines invented and patented by Mr. Thos. Mansell, says a cotemporary, one of which is for cutting or shaping leather, paper, linen, and other fabrics. It consists of a "fly-press." The leather or fabric to be cut is to be laid on a steel plate, and the tool being brought down upon it, cuts to the required shape. Several thicknesses of leather or fabrics may be cut at same time, and the press may either be worked by hand or machinery. The second invention is a machine for blocking or shaping the fronts of Wellington, Clarence, or Blucher boots. These machines will be sent, we understand, to the International Exhibition.

**BRITISH ARCHÆOLOGICAL ASSOCIATION.**—The first public meeting for the session was held on October 23, Sir Fortunatus Dwaris, F.R.S., in the chair. A number of presents received during the recess were laid on the table, and a long list of additional associates was read, including the names of the Earl of Derby, Earl of Ellesmere, Lord Skelmersdale, Bishop of Manchester, Sir B. Heywood, Bart., Sir Oswald Mosley, Bart., &c. &c. A statement of proceedings taken in consequence of a resolution passed at the Manchester Congress "recommending an attempt to form a junction between the Archæological Association and Institute," was read, and having been printed, the members present were furnished with copies of the same. A vase found in Charn-

wood Forest, in June 1840, containing a large number of Roman coins, was exhibited. This formed part of the temporary museum at Manchester, and is now the property of the Association. A description and particulars of the coins will appear in the journal. Mr. Burdett exhibited a coffin of the fourteenth century, purchased lately in Paris. Mr. Planché made some remarks on a tilting helmet of the time of King John, found at Eynesford Castle, Kent, belonging to Mr. Pratt. Also upon tapestries in various parts of England, of the time of Henry VII., but which are frequently referred to an earlier period, such as that in St. Mary's Hall, Coventry, said to have been given to that city by Henry VI., and those under the music galleries at Hampton Court. A paper by Mr. J. A. Repton, on the history of the various styles used in the construction of timber houses, was read by Mr. C. Baily, secretary, and produced a very interesting discussion.

**THE WINTER EXHIBITION OF SKETCHES.**—This exhibition, to which we have before alluded, promises to be very excellent. Amongst the works already sent in are drawings by Topham, Anthony, Bentley, Branwhite, Chalon, Lee, Hollins, Redgrave, Copley Fielding, F. Goodhall, Patten, Frost, Tenniel, Frupp, Holland, O'Neill, Linton, Nesfield, Gastineau, McKenzie, Haag, Oakley, J. Wood, Jenkins, Corbould, James Gadsden, A. Cooper, J. Hart, Bennett, Callow, Clint, Cooke, Dodgson, Duncan, W. Evans, Lance, Elmore, Frith, Egg, Cope, Turner, Martin, Solomon, Hook, Pyne, Lake Price, Allen, Hunt, A. Johnston, Jutsum, Kennedy, Knell, Montague, Niemann, Penley, Vacher, John Wilson, jun., Wehnert, Wingfield, and David Roberts.

**JACOB'S ISLAND, BERMUNDSEY.**—A deputation from the Metropolitan Sanitary Association waited on the Commissioners of Sewers on the 29th ult., respecting the tidal ditch in Jacob's Island, Bermundsey. A memorial, signed by sixty of the inhabitants of Bermundsey, was read, praying the commissioners to use the powers entrusted to them, and fill up the tidal ditch. The Rev. C. Hume, Dr. Gavin, and Mr. C. R. Walsh, explained the wretched condition of that locality, and the sanitary evils arising therefrom; and were assured by the commissioners that, within a very few days, steps would be taken for its improvement, by a comprehensive plan of house drainage; but that in consequence of legal proceedings taken against them, the commissioners could not promise at present to fill up the tidal ditch, as the memorialists and deputation urged them to do.

**ELECTRO-TELEGRAPHIC.**—In response to some very monopolistic remarks on electro-telegraphic progress, by Mr. Walker, of the South-Eastern line, a correspondent of the *Times* points attention to the fact, that the *New York Herald* derives from the electric telegraph, in round numbers, thirty times the service which the *Times* derives from the same agent, although no American journal can command a tithe of its resources. The transmitting power of the telegraph now in actual use in the United States is stated to be from four to five times greater than that of the English system, but a still more rapid method is about to be practically applied. "Mr. Walker," adds the same writer, "implies, that if the business of the telegraph were much increased, there would be a risk of errors of communication, or of injurious and inconvenient delays in the transmission of despatches. To this I have only to reply, that there are no complaints of such errors or of such delays in the United States, although the press, free even to licentiousness, is open to every such complaint. Turning to Mr. Walker's own communication, we find him on this point even saying—"Indeed, if I thought it likely that our present charges would bring us a great or a heavy pressure of business, I should be disposed to advocate an advance in price! and for this reason—I consider that the telegraph is an instrument to be used when other means fail. How will it be when a dying wife shall send to call home her husband, and her message shall be 20th on the list, and will go in its turn?" How will it be, indeed,—at least, under present management,—when, even now, a message between life and death takes four hours more than the usual train to run between London and Perth, as recorded in the same

week's *Times* with Mr. Walker's question!—A deputation from the British Electric Telegraph Company has had an interview with the Lord-Lieutenant of Ireland, at the Viceregal Lodge, on the subject of a continuous electro-telegraphic communication throughout the three kingdoms.—Workmen are employed at Paris just now in fixing a wire from the Bastille to the Madeleine, as an experiment for an electric telegraph throughout Paris for the transmission of messages.

**MANCHESTER WATER-RATE.**—The corporation of Manchester have resolved to confer a very great boon on their fellow-townsmen, by devoting one-half of the splendid profits of their gas establishment in reducing the water-rate to one-half what it would otherwise amount to. The gas profits are about 36,000*l.* a year. Some interested parties have been in the habit of attempting to sneer down the idea of corporations becoming gas manufacturers. Here is one corporation that is not only a gas manufacturer, but a water supplier too, and what is there in the result to sneer at? Not only are the constituents of that corporation supplied with cheap and good gas, but with cheap and good water too, and moreover with other noble city improvements, simply because they have chosen to take these their own important public interests into their own hands, rather than to allow them to be administered by self-interested, and but too often blindly and stupidly self-interested, companies.

**SURVEYOR OF THE CITY OF YORK.**—Mr. J. B. Atkinson, architect, has been appointed city surveyor, at a salary of 200*l.* per annum. He is not required to devote the whole of his time to the duties of his office.

**THE EXETER BATHS AND WASH-HOUSES COMPETITION.**—The advertisement produced, it is reported, about a dozen designs in competition. The unsuccessful competitors have received back their plans, with an intimation of their not possessing the requirements demanded. They are not informed who their successful opponents are. It is farther reported that a design from a town in Cheshire was put in before the advertisement was issued in July, and that this, or an improved version of it, has been adopted, and that the competition is therefore *nil*. Can any of your readers throw light upon the proceeding, to satisfy the candidates and her who calls for satisfaction, viz.,—JUSTITIA?

**THE ROYAL INSTITUTE OF ARCHITECTS.**—The first meeting of the Institute will be held on Monday, 4th inst., when a paper will be read on "The Remains of the Architecture of the Romish Provinces."

**THE NEW PARK AT BATTERSEA.**—We understand that the Commissioners of Woods and Works are progressing with the arrangements for carrying into effect the projected park in Battersea-fields, and have purchased, for the sum of 11,000*l.*, the premises so long known as the Red-house.

#### TENDERS

Of the new Devonport workhouse, which were opened before the committee on the 25th ult.

Symons and Hoskings, Devonport	£22,159 16 8
Perkins, Devonport	22,136 0 0
T. Greenwood, Devonport	22,066 19 8
Marshall, Plymouth	19,765 19 2
W. and T. May, Devonport	19,699 6 2
Harvey, Plymouth	19,648 7 9
T. Clift, Plymouth	19,589 19 4

For erecting a dwelling-house and offices, stable building, and fence walls, at Charlton, Kent. Mr. Edwards, Architect.

King	£2,395 0 0
Wild	2,272 0 0
Peake	2,076 0 0
Holland	2,039 0 0
Locke and Neaham	1,905 0 0

For hospital at Gloucester union workhouse. Messrs. Jacques and Son, Architects.

Hayes, Gloucester	£2,119 0 0
Sims, Gloucester	1,885 0 0
C. Niblett, Gloucester	1,845 0 0
Cholerton, Quekeley	1,560 0 0

For building and finishing four fourth-rate houses, for Mr. Lyons, Camden-town.

Lawrence	£1,517 0 0
Brown	1,390 0 0
Higgs	1,156 0 0
Collins	1,179 0 0
Pollock	1,125 0 0
Young	1,049 0 0
Jordan	1,009 0 0

\* Accepted.







ing and Bee Glasses. — Address, 87, Bishopsgate-street Without.  
See Priced List Advertisement, Saturday, June 15.



# The Builder.

No. CCCC.

SATURDAY, NOVEMBER 9, 1850.

**O**N Monday, the 4th, the Institute of British Architects re-assembled to open the session in their old locality, Lower Grosvenor-street. Endeavours have been made during the vacation to obtain more convenient meeting-rooms, but without effect.\* We would recommend to the attention of the Council a letter in another part of our present number, urging (as we have often before suggested) the erection of a *club-house for literary, scientific, and artistic societies*. We do not see any difficulties in the way of such an undertaking that could not be surmounted: the Government, too, ought to assist it, and would probably do so if it were brought before them by the proper parties in a proper manner.

We are anxious to see the Institute aid in the advancement of the art and its professors even more than it now does, to which end the leading members of the profession should attend and put their shoulders to the wheel. Papers and discussions touching the *live* things of the day should be encouraged: the architect's right position should here be asserted; the difficulties which beset him should here be combated; and his doubts should here be resolved. The opening meeting of the session might be made an event, and we should be glad to find one of the leading members on these occasions placing before the Society, and through that, the public, a general view of such questions as may at the time be occupying the mind of the profession; enunciating his own opinions, and inducing the expression of those of others.

In the absence of the President, Earl de Grey, on Monday, Mr. Fowler, V.P. took the chair, and congratulated the society on their position after fourteen years' existence. The usefulness of the new session, he said, would depend wholly on the members themselves: to them the council must look for papers, with which at present they were not well provided. The chairman also alluded to the coming Exhibition as an event which could not fail to bring to this country a large number of their corresponding members, and give an opportunity for the display of good feeling. The council had under its consideration arrangements for the advantage of their expected visitors, which would, doubtless, receive the sanction of the members generally when brought before them.

Professor Donaldson, in proposing a vote of thanks for works presented during the recess, was good enough to allude to the letter

\* The following letter refers to the present rooms, and shews the opinion that exists concerning them:— "I will venture to affirm that there is not in London a worse ventilated or more ill-arranged room in its general appointments for the purpose of a general meeting than that at present occupied by the Institute. As far as ventilation is concerned, there are neither means of ingress for fresh nor egress for foul or vitiated air (or if such exist, they are upon such a scale as to be wholly insufficient); nor are the products of the combustion of the gas carried off; the consequence is, that the stench and heat are insupportable. Seats *without backs*, and so arranged as to take the maximum of space with the minimum of convenience, afford some faint notion of the arrangement, or rather the entire want of it. Should you succeed in your struggle for a seat, it is very problematical how you may get out (certainly not without making considerable stir). I would suggest, therefore, if it be the intention to retain the apartments in Grosvenor-street,—to throw the two rooms into one, and take in the lobby, by means of iron grinders and standards,—to have fixed seats with backs, to hold not more than four, and radiating, if possible,—the back seats to be raised. This, with some system of ventilation, would minister much to the comfort and health of the members generally."

"R. L. SIBLEY."

on the improvement of the Lord Mayor's Show, which has already appeared in our pages, as likely to lead to the introduction of more taste and greater meaning into these pageants. At Munich, in Belgium, and at other places abroad, he said, the public processions furnished representations and emblems of all the local trades as well as the arts and sciences, and he trusted that hereafter in England the pageants of the 9th of November would become a historical record of the times, and enlist public feeling in the cause of art. The Lord Mayor elect was a man of great public spirit, and it was a subject of congratulation to find that he was about to take the first step towards divesting "the Lord Mayor's Show" of its hitherto unmeaning character.—Allusion was also made to a work by Herr Semper, illustrative of the Theatre at Dresden, which contains several noble apartments, and is intended to be used for public fêtes.

A letter was read from Mr. Octavius Hansard, dated Cremona, stating that Signor Miglioneza, of Vicenza, was about to send to England a series of drawings of the innumerable fine remains of a Roman theatre, recently discovered there. "These fragments, and the mass of building remaining, are so perfect, that he has, upon pretty sure foundation, made drawings of a restoration. I may mention (continues the writer), that amongst the fragments is an Ionic cap, the volutes of which are not cut; but upon one of the faces is distinctly marked the method of turning them, which appears to be upon a different principle than we have hitherto known."

Mr. James Bell read a paper "On the Remains of the Architecture of the Roman Provinces," the object of which was to point out as worthy of study the large number of works left by the Romans in various parts of the world, which, though not so pure in style as those in Rome, offer many points of great beauty and interest. The remains in Treves, the monuments at St. Remi and Igel, and the buildings in the south of France, Nismes especially, were described. The well-known *Maison Carrée*, at the latter place, is more perfect than any temple in Rome. The amphitheatre here is of such a plan, that every pillar has one acute and one obtuse angle, so that the science of stone-cutting was much more called upon than in the Coliseum. At Nismes the restorations now going on are made by chemical means to resemble the old parts, so that care is necessary, when measuring and drawing, to discriminate. The Roman works in Spain are numerous: they suffered, as a matter of course, from the French armies, who appear, strangely enough, to have done all the mischief in their power to works of art. Africa contains many specimens of Roman work. The buildings of this period in Egypt are usually neglected. Palestine affords a rich harvest of Roman remains, particularly Palmyra and Balbec. In Asia Minor, he said, much yet remains to be investigated.

Mr. Tite fully concurred as to the value of this class of works for study, but more so as to the importance of studying the works of the best periods of classic architecture. Unfortunately, nothing was now thought of but mediæval art; all else was neglected. He wished that the Institute could do something to restore the ancient and better taste. Every young architect should study the ruins of Rome: he would maintain that a thoroughly good architect could not be made without distinct study of ancient art.

Mr. Donaldson, speaking of the extent to which the Romans, whom he regarded as benefactors of mankind, had diffused art wherever they acquired dominion, said it was to be regretted that there was no work, worthy of being named, illustrating the Roman remains in England. It should be a national undertaking.

A member, with reference to Roman works in our country, directed attention to the excavations commenced at Lymne, commonly called Stutfall Castle, in Kent, and expressed regret that a Pompeii should lie at our feet, and, for want of funds, remain entombed.

Mr. C. H. Smith (returning to Balbec) expressed a doubt as to the dependence that could be placed on Wood and Dawkins's work on the ruins of that place, particularly as to the ornament. He saw the original sketches some years ago, and they were so small and so slight that much was necessarily left for the imagination.

Mr. Scoles said he would not speak as to the book, but he had studied the ornament at Balbec, and it was as fine as in the best buildings of Rome.

We add a list of all who were present at the meeting. Of the Fellows, there were Messrs. T. L. Donaldson, C. Fowler, C. C. Nelson, G. Bailey, T. H. Wyatt, J. J. Scoles, C. Mayhew, S. Wood, J. T. Knowles, J. Bell, G. Godwin, J. J. Cole, W. J. Denthorpe, D. Brandon, J. Tarring, G. O. Leicester, G. Mair, T. Smith, H. Roberts, J. W. Papworth, W. P. Griffith, J. Thomson, T. Bury, and W. Tite. Of the Associates,—Messrs. G. B. Williams, J. Gibson, C. Henman, W. Beck, R. Forster, W. Wright, G. Judge, A. R. Dobson, F. W. Porter, H. Oliver, C. J. Eddrup, A. Green, J. M. Lockyer, C. H. Howell, J. F. Wadmore, E. J. Kelly, N. Randall, A. J. Baker, J. Clayton, J. Norton, G. Vulliamy, E. Falkner, T. Y. Kington, and J. Fergusson.

The visitors were,—Messrs. C. Fowler, jun., J. B. Hewitt, J. T. Smith, R. Nicholson, J. B. Lockyer, R. Smyth, J. D. Wyatt, W. Roe, W. M. Teulon, S. Derby, J. Thorpe, J. E. Jones, R. Cole, E. W. Brayley, G. H. Knowles, N. Smith, C. R. Dillon, H. Pownall, W. Norris, R. L. Beck, S. Godwin, T. Gardiner, G. Hepburn, F. Whyte, C. H. Smith, B. Fletcher, E. C. Robins, E. T. Parris, G. Sibley, C. Backhoffner, T. J. Goodman, L. Cubitt, J. Wilks, A. Cole, T. D. Dighton, F. C. Wither, W. Scargill, E. Wilson, C. H. Purday, W. Papworth, G. Cooper, T. Robinson, T. J. Willson, E. E. Scott, J. S. Donaldson, H. Hood, F. Edwan, J. Disney, W. W. Lloyd, Jacob Bell, Herr G. Semper, and Dr. Dickson.

## THE CAUSES AND CURE OF "SMOKY CHIMNEYS."

IN commencing a series of papers on this subject, I may be permitted to devote a few lines in explanation of my reasons for doing so. It can scarcely be doubted that the more immediate cause of what are familiarly called "smoky" chimneys is the lamentable ignorance of the nature and principles of their action, which prevails to a very great extent. It is quite true that there are natural causes, but they are such as may be entirely controlled by the intelligence of man; and are only called into action by his ignorance of all save the merely practical part of his operations. An imperfect chimney ought therefore to form the exception instead of the rule, which it appears to do, even in this enlightened age; and it is with this conviction that I have allotted to myself the task of endeavouring to dispel the cloud of mystery that seems to envelope the existence of those most indispensable mechanical agents, chimneys.



These papers being intended for the use of every class of the community which is either now, or may hereafter be, subjected to the inconvenience and annoyance attendant upon "smoky chimneys," as well as for those more immediately engaged in the business of arranging, constructing, or "curing" chimneys,—for the non-practical as well as for the practical man,—I will studiously avoid entering further into scientific detail than is barely necessary to convey such a correct impression of the principles involved, as may possibly conduce to the removal of this truly popular "fireside" grievance, the "smoky chimney."

If proof of the lamentable ignorance prevailing upon this subject be in any instance necessary, let the sceptic take a ramble through the streets of "this vast metropolis," and scarcely will he find a single dwelling, where the means of the occupant have enabled him to employ the "chimney doctor," that does not present monuments of it, in the shape of chimney tops of every variety of material, form, size, and construction.

A better state of things may be produced by placing the true causes of the imperfect action of chimneys with the means of preventing such imperfections before the notice of all interested in such matters, in a simple, clear, intelligible, and comprehensive manner; and with such intent, I will first endeavour to elucidate the nature and principles of the action of chimneys: I will then describe the causes of imperfect action; and, finally, the means of ensuring proper action; which are based upon the scientific theory of the question, and have stood the practical test that a long and intimate acquaintance with the subject has enabled me to apply. With these prefatory remarks, I will at once introduce my readers to the consideration of the first branch of the subject, in entering upon which we come first to inquire—What office does a chimney perform? The obvious reply is, that of conveying smoke from the firegrate or furnace into the atmosphere. That it performs this office is a fact requiring no argument to demonstrate; but how, or by what means it performs it, is a question not so easily disposed of.

Before proceeding further, let us see of what the atmosphere consists; for, as the smoke from fires is conveyed into, and, as we see daily, ascends through, it, there must be something in its nature and relation to smoke that connects it with the action of chimneys. First, then, as to its nature. The atmosphere is the volume of air which envelopes the earth, and is present at every point of its surface, extending upwards into the firmament to an indefinite distance. It is the air we breathe, and which is necessary to the support of animal life. It is composed of two kinds of gas, viz.,—oxygen gas and nitrogen gas; and in common with all other gases and æriform bodies it is called a fluid.

It is important that the term *fluid* be thoroughly understood, and its meaning remembered, as it will occur frequently in the consideration of our subject. Water, oil, and all other material substances, the particles of which, in their natural state, possess the property of flowing freely among each other (excepting those that are granular, such as sand, flour, corn, &c.), are called fluids. To use a more homely form of explanation, all substances that flow, or can be poured from one vessel to another (excepting granular substances) are fluids.

Smoke is a fluid, and, like the atmosphere, which is also a fluid, it is composed of gases. Hence, we find that a very close relationship exists between the atmosphere and the smoke which ascends into it; inasmuch as they both belong to the same class of natural substances, viz., fluids. Having traced this relationship so far, let us now inquire why the smoke from fires ascends into the atmosphere.

The science of chemistry has revealed to us that atmospheric air is composed of about 80 parts of nitrogen and 20 parts of oxygen gas; and that its specific gravity, or weight, bulk for bulk, compared with pure water, is nearly as 1 to 800, i. e. a gallon of atmospheric air is 800 times lighter than a gallon of pure water. The smoke created by burning coal is chiefly composed of carburetted hydrogen gas, which, when purified, or separated as far as possible from other gases, is the same as that commonly used for inflating balloons. Its

specific gravity, or weight, as it is evolved from the coal, without being purified, is, compared with pure water, nearly as 1 to 1,600, or about 1,600 times lighter than the water. It is, therefore, compared with common atmospheric air, nearly as 1 to 2; or, in other words, the atmosphere is about twice as heavy, bulk for bulk, as the smoke from burning coal. Here, then, we have smoke a light fluid, and the atmosphere a heavy one, as compared with each other.

Now oil, which is a lighter fluid than water, immersed in a vessel containing water, and liberated near the bottom of the vessel will rise to the surface, just as common air rises in bubbles to the surface of water; and so it is with all fluids that differ with each other in specific gravity, or weight, bulk for bulk. The lighter fluid will ascend through the heavier, until it is stopped by meeting with a lighter fluid than itself; as oil rises through water to its surface, where it is stopped by the atmosphere, which is a lighter fluid than oil; or, until the lighter fluid becomes absorbed or mixed up with the heavier, where the nature of the two will admit of it, as alcoholic spirits and water.

This phenomenon may be illustrated by the following experiments:—Let AB, fig. 1, represent an ordinary scale-beam, evenly poised upon its fulcrum C, and supporting at its two extremities two vessels *a* *b* of exactly similar dimensions and weight; and let the beam AB be prevented from moving until required. Now fill the vessel *a* with a heavy fluid, say mercury, or "quicksilver," and the vessel *b* with a lighter fluid, as water: mercury being about fourteen times heavier than water, bulk for bulk, the vessel *a* will press downward with fourteen times as much force as that of the vessel *b*. Release the beam AB, and the end supporting the vessel *a* will instantly fall, and the superior pressure from the heavy fluid contained in *a* being communicated to the lighter fluid in *b*, through the medium of the beam AB, the latter will rise, and continue to do so until stopped by the limit to the travel of the beam AB.

Again: Let AB, fig. 2, represent a bended tube, open at the two ends, and having a stop-cock in the centre, at C. Let the stop-cock be closed; the leg A of the tube AB filled with mercury to the level of the line *ab*; and the leg B with water to the same level. So long as the stop-cock at C remains closed, and the particles of the two columns of fluid thereby prevented from communicating with each other, the surface of each column of fluid will continue to stand at the same level, *a* *b*, and a perfect balance will be maintained. But, upon opening the stop-cock, C, the two columns will instantly come into contact at the point *c*, and the mercury, being the heavier fluid, will force the column of water up the leg B until the surface reaches the point *d*, fig. 3. At the same time, the surface of the mercury at *a*, fig. 2, will fall to the point *e*, fig. 3, and the point of contact between the two columns will be at *g*, fig. 3, instead of at *c*, as at first. The difference of level between the surface of the mercury at *e*, and the new point of contact at *g*, is occasioned by the pressure of the column of water at *g*, proving that the column of mercury, *ef*, is equal to the column of water *d* *g*, which, upon measure-

ment, will be found to be about fourteen times the length of *ef*. It matters not what fluids are used in these experiments, the same results will follow, but in different proportions.

Now, in order to show how the same principle operates to cause one fluid to rise through another, let ABCD, fig. 4, represent a vessel filled with water to the level of the line *ab*: divide the volume of water into columns by imaginary lines *cd* and *e* *f*, which being all of the same depth, substance, and weight, will equally balance each other. Now, suppose a body of air introduced into the centre, or middle column, near its base, as at *g*: as air is lighter than water, it follows that the centre column, containing the air *g*, must be as much lighter than the surrounding columns as the body of air *g* is lighter than the same bulk of water. The centre column, then, being rendered lighter than the surrounding ones by the presence of the air *g*, the balance before existing is destroyed, and the central column below *g*, being pressed by a greater weight than itself, will rise; or, what amounts to the same thing, will make way for the air *g* to rise until it reaches the surface; the particles composing the column being moved aside by the ascending body *g*, in the same way as the water is moved aside by the bows of a ship to admit of her progress through it. As in the former experiments, it matters not what fluids are used, the same result will follow. If, then, we suppose the fluid contained in the vessel ABCD to be atmospheric air, and *g* a volume of coal smoke, we shall have obtained a perfectly clear demonstration of the cause, or reason "why the smoke from fires ascends into the atmosphere."

Every one knows, from personal observation, that smoke rises; but it is not so generally known that it does so because it is only one-half the specific gravity or weight, bulk for bulk, of the atmosphere; and therefore that it is forced upward by the pressure of the atmosphere beneath it. The cause of the ascending motion of fluids through each other, then, is gravity or weight; and the consideration of the laws which govern its action upon fluids belongs to that branch of physical science called Hydrostatics; a term which is derived from two Greek words signifying "water," and "standing" or "settling."

TBA.

#### THE DESOLATION OF WINDSOR.

THE Royal Borough of Windsor is just now one of the most ragged towns in the British Empire, Ireland not excepted. The readers of *THE BUILDER* no doubt remember, that some years since a scheme was propounded and put in hand by the Board of Works for the "Improvement of the Town and Castle of Windsor," including considerable alterations in the approaches from the pretty little village of Datchet on the north side, and from Old Windsor on the east; and in aid of this scheme considerable sums of money were extracted from the rival railways which have the honour of conveying her Majesty and her Majesty's lieges to and from the Royal Borough. In carrying out these plans two new bridges are required to be thrown across the Thames in lieu of the present semi-ancient (one half is wood, and one-half iron, to which there hangs a tale which must not be told at present) bridge at Datchet, in order to direct the traffic round instead of through the Home Park. To facilitate the work, and no doubt directed by a wise economy, these bridges are both of the same design, and being of iron, are cast from the same patterns; but when they are to be finished is far beyond the knowledge of any one here. Nobody remembers when the foundations were commenced, and the fact that it has taken the whole of this summer to get parts of three ribs to one bridge and a portion of two ribs to the other fixed, renders all calcu-

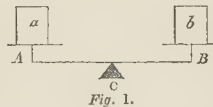


Fig. 1.

Fig. 2. A diagram of a U-shaped tube with two vertical legs, A and B. The left leg A contains a fluid up to level 'a'. The right leg B contains a fluid up to level 'b'. A stop-cock is located at the bottom junction 'c' between the two legs.

Fig. 2.

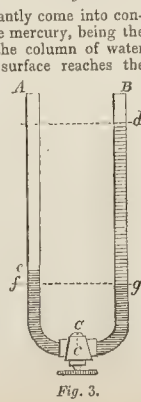


Fig. 3.

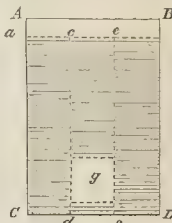


Fig. 4.



lation impossible as to the time still required to complete them. Suffice it to say, that both railways have commenced, completed, and have had in use for some months, bridges of much more difficult construction, which were scarcely thought of when the Board of Woods and Forests commenced theirs. Turning our eye towards the castle from these long bridges, we find the north-west portion of the Home-park cut up in various scientific portions, the South-Western Railway having got a slice off the outer edge for their iron-road, then the new road from Datchet has cut off a large gusset, which has been appropriated to cricket, quoits, and foot-hall by the bachelors of Windsor, as we presume only upon sufferance. We trust that care will be taken of the valuable privilege so generously awarded them by Prince Albert: and the remainder is being divided into gravelled drives, skating ponds, and turf lawns for the benefit of the young branches of the Royal family. Wending our way up Datchet-lane—Falstaff's Datchet-lane, we doubt if he would know it now—we come to the smart new station, building by the South-Western Railway Company, under the direction of Mr. Tite: when completed, it will form an excellent screen between the North Terrace and the mean-looking buildings between it and the Thames side; independent of its ornamental character (Tudor-Gothic design in red brickwork with stone dressings) it seems to be planned with an eye to usefulness and convenience. Passing on up Thames-street we came upon a scene of desolation and wretchedness unequalled in our remembrance and experience: one side of the street, with one or two solitary exceptions, which only serve to make "desolation more desolate," is razed to the ground, leaving but a heap of debris behind, and opening to the view the crumbling walls and tottering ruins of a long-neglected and ill used portion of the Castle. Report says, and we hope truly, that it is intended to complete the design of Sir Jeffery Wyatville, by extending the North Terrace from its present termination at Winchester Tower to the Salisbury Tower. When this is done but few public walks will be able to compete with the Terrace at Windsor, and there will be little cause to grumble at present inconveniences. Passing George-street, which but a year or two since was the St. Giles's of Windsor, we find that the whole street has disappeared, and it is now the site of the Great Western Railway station, a building without any great pretensions to architectural show, the useful having evidently been studied before the beautiful, but they might, we respectfully suggest, complete the coat of compo which is so decidedly wanting on the principal front before the cold weather comes on. And now for a walk up to the castle, premising that, not having the *entrée*, we shall not attempt to describe that which cannot be seen by any other humble pedestrian during the absence of her Majesty. This summer considerable alterations have been made in the interior, for the better accommodation of the increasing number of inhabitants. Hot water and hot air has been laid on by Mr. Price, and preparations made for a better supply of cold water by Mr. Simpson, it having been recently discovered that Windsor Castle was sadly deficient in those very necessary adjuncts to a modern establishment. The smoky chimneys, too, are no longer to smoke. Under the directions of Mr. Turnbull, the smoke is to turn up instead of down the chimneys. The orangery under the North Terrace has been covered with asphalt, which, we have little doubt, will prove a good substitute for the lead, which our ignorant (?) forefathers laid over it. The drainage, too, has been reformed and reconstructed in accordance with modern ideas and notions on this important subject. An additional flight, or rather double flight, of steps, is being fixed in the east garden, which will be a great accommodation to numerous visitors, but as the work only proceeds at the rate of a step and a bit in a week, we have some misgivings as to when they will be ready for public use. By the bye can any of your readers tell who is the "Architect for Windsor Castle," and who, of course, is answerable for any good or evil doing which might be going on, supposing Joseph Hume or Colonel Sibthorpe chose to make any unnecessary inquiries in the next or another Parliament? T.

#### THE EVILS OF TASK-WORK AND "TOMMY-SHOPS."

Or all the evils and abuses which exist in the building trade, I think there is none to exceed that abominable system known as *task-work*. It is a cause of misery and drunkenness: it not only injures the working classes, by producing drunkenness and immorality, but it causes scarcity of employment; for it has been proved that double the work can be done at the present time that could be performed many years ago by the same number of hands. But it must be borne in mind, that although double the work be done at the present time, this work, for goodness of workmanship and substantiality of construction, cannot in the slightest degree be compared with that done in former years, and under a better system. A man, to do his work well, must have a fair time to do it; but *task-work* will not allow that fair time. *Task-work* produces improvidence, and fosters immorality; it degrades the workman, and lessens the employer in the estimation of the workman; it renders the competent mechanic incompetent by any length of practice. Half the accidents which occur in the building trade owe their origin to *task-work*. Many a life and limb have been sacrificed through the reckless system of *task-work*.

The most ignorant and depraved persons are selected to do this work; and although it may appear strange to some of your readers that an ignorant man should be called upon to lead his respective department on a public building, it is nevertheless no more strange than true. In the first place no respectable mechanic will have anything to do with *task-work*, for it cannot be expected that a man possessing the smallest amount of respectability would stand and drive, swear and abuse, his fellow-workmen, as is usually the case on these jobs; nor is it at all probable that a man who is master of his trade would have any dealings with *task-work*; for the chief delight of a good workman is to see his work done in a masterly style, and not scamped in the manner which characterises these jobs; and another thing, it would be impossible for a respectable man to earn his wages at it; for although there are exceptions, the majority of *task-masters*, as they are, with all their perquisites in the shape of 2s. 6d. in the pound spent by their men at the *tommy-shop*, and other pickpocket arrangements, cannot earn their wages; and often, when the job is half up, draw the amount of men's wages some fine Saturday night, and then vanish.

It is a singular fact that although most builders are anxious to have sober, steady, and industrious workmen in their employ, yet, by encouraging this *task work*, they hold out a premium for drunkenness and immorality in their worst forms; for no job of any extent, carried on under this system, is without its *tommy-shop*, and the man who is the greatest drunkard and glutton is looked upon with the greatest favour. Those bits of tin, called tickets, are served out with the nicest precision: let a man be in ever such a remote corner of the building, he is sure to be spied out by the vigilant eye of the ticket clerk. I have known men to work all the week and earn their 30s. and on the Saturday night manage to take about five or six home to their wives and families, the rest being detained for tickets for which beer, gin, &c. were given; and then, Sir, they call the working classes improvident: no wonder when every encouragement is given for improvidence, and by those, too, who ought to do all in their power to check it.

But what is to be done to reform this atrocious system? In the first place, before a workman will experience any degree of pleasure in working at *task-work*, respectable and competent men must be placed at its head, men who, when they have authority, know how to use it. *Task-work* placed in the hands of sensible and honest men would soon drive itself of the evils which at present environ it; gin and beer would be uncalled for, at least on the work, and these *tommy-shops* would be found an incumbrance; drunken bricklayers and carpenters would tumble into their own traps, and sober and intelligent mechanics would fill their places. Let us hope that the time is not far distant when this much-desired reformation will be effected.

R. S. T.

#### SOME NEW CHURCHES.

**Mr. A. B. Hope's Church, Marylebone.**—The first stone has been laid of the new church to be built in Margaret-street, Marylebone, on the site of the late Margaret-street Chapel. Mr. Butterfield is the architect, and it is said he has a *carte blanche* as to the cost. Two "religious houses" for choristers and pensioners will be attached to it.

**Trinity Church, Haverstock-hill,** is now open for service, but we have not yet seen it: according to a description given us, the tower stands at the west end of the centre aisle, and with the spire is 160 feet high. It accommodates a large number of persons, partly in galleries. It is in the style of the 14th century.

Side-aisles are formed to the chancel within the width of the nave, whose aisles are prolonged eastward, and there is a threefold arch to the chancel, the centre one of which is very lofty. Messrs. Wyatt and Brandon were the architects.

**The New Church at Birch,** near Colchester, has been erected from the designs of Mr. Teulon. It is in the Decorated style, built externally of flint and dressings of Caen stone. The porch is on the south side, and at the north-west angle a tower and spire rise to the height of 120 feet. Internally it consists of a nave, north and south aisle, chancel, and vestry. The nave and aisles are separated by columns and arches of Caen stone, with carved corbels supporting the arched principals of the roof, which is an open one of stained wood. The chancel window, and that at the west end of the nave, are of three lights each, filled with tracery; and each aisle is terminated with a large three-light east window. In each of the aisles are four side windows, from which the nave is lighted, all of them having mullions and tracery of Caen stone. The pulpit, reading-desk, and altar-railing are of carved oak, the material for the former being derived from the timber spire of the old church. The church will afford accommodation for about 500 persons: the builders are Messrs. Baldiston and Son, of Ipswich; and the cost will approach 4,000*l.*—the whole being the gift of Charles Gray Round, Esq., of Birch Hall.

**All Saints' Church, Pontefract-lane, Leeds.**—The first stone of this building was laid by the Rev. Dr. Hook, in 1846; but the progress was stayed by the secession from the Church of England of Mr. Haigh, by whom the cost was to have been defrayed. The building consists of a nave and aisles, north and south porches, north transept, galleried, and organ chapel—the latter to the south-east of the nave. The tower is engaged, and stands on the north transept: it is surmounted by a lofty spire. The nave has five bays internally, but no clerestory. The columns are alternately clustered and octagonal. The roofs of the nave and aisles are open, and all of them gabled. The chancel has a waggon-head roof ceiled. The exterior of the church has rather a bare appearance. The style is Geometric, and it has been erected at an expense of about 3,000*l.* Messrs. Healy and Mallinson, architects.

**The Church of St. John the Evangelist, Little Holbeck, Leeds.**—This building is in the early pointed style, and is constructed on the principle of the choir of the Temple Church, and the Lady Chapel of St. Saviour, Southwark, and has a vaulting of stone of equal height throughout. It is, perhaps, the only modern church which is vaulted with stone through its whole extent. The exterior is plain and simple, having an octagonal bell-turret instead of a tower. The church consists of a nave with aisles of five bays or arches in length, a chancel of three bays, and a north chancel aisle or chapel of two bays in length, the latter opening by arches into the chancel and the north aisle of the nave. There is, besides, a north porch of two stories, and a vestry adjoining the chancel. The nave is, with its aisles, internally, about 68 feet long by 49 feet wide; the chancel about 36 feet by 18 feet; the whole external length about 120 feet; the height of the internal vaulting about 31 feet. The vaulting is carried by slender clustered columns of Aubigny stone, excepting only that between the chancel and its side chapel, which consists of five detached shafts of polished Derbyshire marble. Each side bay of the nave is lighted by a couplet of tall lancets with shafted jambs and moulded arches: those at the west end have a circle superimposed. The upper story of the porch opens by an arch into the nave, into which projects a small stone gallery of ornamental character, intended to receive the organ. The tracery of the side chapel is geometric. The seats are all of oak. The floor is of tiles. The windows have stained glass. The architect is Mr. Scott. The builders, Messrs. Cooper, of Derby. The material of the exterior is the sandstone from the neighbourhood of Weetwood; that of the internal dressings is the Caen stone, excepting the columns, which are generally of the Aubigny stone. The internal ashlar, both of the walls and vaulting, is from the Hare Hill quarries. The accommodation is for between six and seven hundred persons.



## PLANS FOR IMPROVING LIVERPOOL.

IN June last the Liverpool Improvement Committee drew up an advertisement inviting architects, engineers, &c. to offer views and plans for the improvement of the borough, and the laying out of unoccupied lands in its immediate vicinity. The committee, as directed by the council, offered premiums of 50*l*. for the best plans, and 25*l*. for the second best. In compliance with the advertisement, twenty-three plans were sent in, each of which was accompanied with explanations and statements. After a careful consideration of all the plans sent in, the committee selected the plan bearing the motto "Rus in Urbe" (found to be by Mr. H. P. Horner), as entitled to the first premium, and that bearing the motto "Curator" (by Mr. Henderson) as the next in merit.

In submitting this report, the committee add, that the funds at the disposal of the committee, under the existing Improvement Acts, will be wholly absorbed by the improvements now in progress, and concur in the opinion expressed by former committees, that no comprehensive plan can be carried out solely from the surplus income of the borough, yearly at the disposal of the council.

According to the *Liverpool Times* almost all the plans possess great merit, though to carry out the designs of some of the exhibitors would cost the whole of the surplus income of the corporation for the next half-dozen years.

Mr. Horner commences his remarks by stating that a plan of the town, revised from time to time, showing the improvements wanted, should be kept by every public office, and the progressive improvements effected under the guidance of an officer, whose duty it would be to carry them out whenever practicable. Liverpool, he says, bears distinct marks of having been laid out with little view to the probability of its increase, and in few towns have more opportunities been missed of correcting original errors at later periods of its progress. Amongst the most striking defects in these respects he mentions the cutting off of leading thoroughfares, as if they were never to be extended, and the closing them with public buildings, thus affording no outlet, except at great distances, for main streets. Mr. Horner then alludes to the irregular manner in which the districts at the north and south ends of the town have been laid out, without any reference to their connecting themselves with the central part of the town.

As regards his plans for improving the outskirts, he remarks, that his attention was mainly directed to the connection of roadways at present detached, straightening those inconveniently crooked, providing for their probable communication with existing or proposed streets, and, above all, securing one of the best provisions for the health and comfort of an immense population—a belt of garden or park land, bounding the present extent of the town, and insuring the interposition of a stretch of comparative country, between the existing buildings and any more of a town character. He proposes to form gradually nine parks for public recreation.

Nearly all the competitors propose, as a matter of course, sweeping changes and improvements round St. George's Hall, that the building may be seen to advantage.

It is stated that the want of funds will prevent the formation, at present, of any of the proposed parks. To talk of want of funds for such a purpose on the part of such a town as Liverpool, wealthy and important in the highest degree, is quite nonsensical.

## LIVERPOOL ARCHITECTURAL SOCIETY.

At a meeting of this society on the 30th ult. Mr. Chas. Barber, vice-president, in the chair, the attendance being more numerous than it had been at any previous meeting of the society held this year, a paper was read by Mr. W. Walker, of Manchester, on "Ventilation as a Branch of Sanitary Reform." Mr. Walker showed, that although sanitary improvement formed one of the principal topics of the day, as yet very little had been done in that direction. It was true that during the sway of the late epidemic, and since that time, more copious supplies of water had been furnished to large towns, some few drainage works had been undertaken, and in many of our public buildings great attention

had been paid to the insurance of copious supplies of air, yet sanitary operations were, generally speaking, limited and imperfect. Ventilation was not merely a summer question, but at all seasons of the year we must have air. However, care must be taken that it is not introduced into rooms in an objectionable manner. Mr. Walker then alluded to some of the plans of ventilation which had been successfully adopted.

Mr. R. Rawlinson said, he quite agreed with Mr. Walker, that it was time architects took up the subject, and that ventilation should be considered in the structure of buildings. If it was necessary to put a roof upon four walls, it was quite as imperative to make provision for the due regulation and escape of air. Any attempts at ventilation after the house had been occupied, or even the adoption of so-called "ventilators" in chimney-breasts, were mere make-shifts. They did not give that which was required, namely, full, free, copious, and safe ventilation. To be safe, ventilation must be diffuse; it must also be perfectly under control. He had no hesitation in saying that a well-built house of modern construction, in the metropolis or Liverpool, was the most dangerous tenement that a man could put his head into. He lived in a London house, which was so well built that the door vibrated like an *Æolian* harp. When he sat by the fire writing he had to resort to the expedient of turning a bucket the wrong side up to put his feet upon, in order to escape the ill-effects of the draft, the fireplace being low. He had no doubt that many literary men who became absorbed in their subject, and got their heads heated whilst their feet were cold, from the drafts which crept along the floor, had their constitutions materially affected from want of the necessary precautions. The corridor, lobby, and staircase of a house should be well warmed, which would do away with those cutting drafts that crept along the floors and were so injurious in winter. Allusion had been made to the ventilation of cottage tenements: as Inspector to the Board of Health it had been his duty to travel through the length and breadth of the land, and he had visited tenements of all descriptions. Doubtless many gentlemen in that room had read the statements drawn up by men in office, and imagined them to be overcharged; but he could assure them that there did not exist a man who could adequately describe the utter wretchedness in which the lower classes of this country lived in the nineteenth century, and in the midst of boasted civilization and refinement. It was laid down as a law that 800 feet of air was necessary for each individual, and he had seen thirty persons snoring fast asleep where there should have been but two. It was high time this state of things should be altered.

## PATENT ABUSES.

AN article which appeared in *THE BUILDER* a year back on this subject, and which was followed by another six months after, entitled "Patent Usurpations," opened a question for discussion by the press, which has been seized on by all the journals and periodicals in succession.

The admirable print called *Household Words* sets forth, in *naïve* but simple demonstration, the bustling and plucking that a poor man is sure to encounter in his progress through the multifarious offices in course of registration, chaffing, and waxing. The *Dispatch* goes somewhat further, and exposes the injustice and fraud perpetrated upon struggling genius; as also the impolicy of thwarting the free spirit of invention in a state the very essence of whose prosperity depends on the skill and superiority of her manufactures: but somehow, no one has as yet referred to the chicanery and artifice by the base practice whereof the poor inventor is too frequently choused out of his profits and recompense, when, after having run the gauntlet through the several levers of black mail, after having met every demand, he is sure to be assailed as soon as his patent is sealed and signed by the sovereign.

In order to raise the funds required to clear all the toll-bars through his journey, the inventor must confide in some one the details of his plan; in many cases two, three, or more persons become acquainted with these confidential trusts, and in all cases where the

material is an article of manufacturing fabric, it is indispensable that models be made in that material, and therefore that a further confidence be placed in the manufacturer in the express form of the thing to be patented.

Here, then, at the outset we find genius exposed to the chance of publication, either by the party who first entertained his proposition and mayhap rejected it, or by the party whose interest it is, above all others, to defeat the project of the discoverer,—namely, the manufacturer of the commodity which is the subject of patent.

In the case submitted to *THE BUILDER*, the originality of the invention consisted in a new adaptation of tubes in terra cotta (encased in walls) to the purpose of carrying off smoke, or for chimney flues. Having paid the ordinary fees, and taken out a *caveat*, considering his invention safe, he sent for models to a tiler in Staffordshire. Of course there was no difficulty in getting cylindrical tubes in that material, but unhappily the object of their application oozed out!

Straightway the secret was disclosed, and long before the patent was or could be sealed, the manufacturer of scitilo wares fabricated terra cotta linings for chimneys. During the interval of time between the enrolment of the *caveat* and the registration of the patent, several oppositions were started to the proposed plan and design of the inventor: these claims and objections were duly heard and decided by the Attorney-General (Sir F. Pollock), and having been set aside, after some months' delay, and of course at a cost increased by such procedure, at length the end and object of all the expense, care, and toil of the invention was attained, and the patent sealed.

The next thing in the nature of events to be expected, as had long been anticipated, was the profit on the use of the patented plan by builders. Claims were made upon several so infringing the right supposed to be legalised by the Queen's sign manual. At first a hesitation followed the demand, and lastly, a positive refusal to acknowledge a patent right which had unavoidably transpired while in course of gestation through the offices.

The highest in the arts were, in these instances, the pirates, or at least the users of the principle so supposititiously secured.

As, amongst other illustrious edifices, the flues in question were adopted in Buckingham Palace, the disappointed artificer has put the question of his rights at issue as against the architect of the sovereign, whose palace derives the benefit of that ingenuity which has to this, the seventh year of his patent, been wholly unrequited.

In this case the mechanic (a bricklayer) is left to his hopes and the casual success of his trowel at five shillings a-day, with the contingency of his suit superadded—and he possibly may not be more aggrieved by the royal repudiation of his claims, than others, who, unlike the *protégé* of Charles Dickens, are unable to expose their grievances for the support and sympathy of an impartial public. Q.

## CLUB-HOUSE FOR LITERARY AND SCIENTIFIC SOCIETIES.

I AM a fellow of one of the most popular scientific societies in London, and constantly attend its meetings. Friends of mine have not unfrequently asked me to propose them as members, but when they have seen the place of meeting of the society they have (with only one or two exceptions) civilly withdrawn their request, judging of the company by the room they assemble in. My friends were certainly wrong in their conclusions, for the society is composed of all that is most brilliant in science and literature in the metropolis. But the room we assemble in gives you the idea of the "progress of science under difficulties." We want space for our library, for our meetings, and for servants. In vain committees meet: we can neither build before, behind, nor on one side. If we build an attic we shall have the house on our heads. From all I hear, there are many of the societies in London in the same predicament.

Now, Sir, I think that this state of things might be easily remedied. If men meet together in societies, that they may have better accommodation than each individually can



command, why should not "societies" club together for the same purpose. If four or five of these societies which are notoriously so ill-lodged were to club together, might they not be as well lodged as the gentlemen of the Carlton or United Service? Say that the rental which each society pays for a very bad house is 300*l.* a-year. If four societies were to join together for 1,200*l.* a-year, a magnificent house, sufficient for the purpose, might be had. But for the above purpose a house ought to be built expressly. I myself am quite ignorant of the way in which such joint-stock company affairs are commenced or arranged; I therefore only put this forward as a hint which may be taken up and improved upon by more experienced heads. For example's sake, just to show the practicability of what I propose, I would build a house with the arrangement of a Venetian palace. On the first floor a large central oblong hall, with large windows at each end, having a suite of rooms on each side opening into each other, and into the large hall. This hall should be large enough to be divided into two, for the accommodation of two societies to meet in. I would have the second floor exactly the same as the first floor, also to accommodate two societies. The ground-floor and attic I should fit up for the accommodation of the servants, &c. of the societies.

I venture to send you this crude outline of a building which might be made an ornament to London, and certainly would be a great boon to some of our societies. A. D. S.

#### NOTES IN THE PROVINCES.

ACCORDING to the *Bristol Mirror*, Clifton Suspension-bridge, long torpid, is now in a fair way of being speedily accomplished. It has been unanimously resolved at the Herefordshire Sessions to agree to a suggestion in the report of Messrs. Fulljames and Waller, the architects of the Joint Counties' Lunatic Asylum in course of erection at Abergavenny, that the institution shall be lighted with gas prepared in works of their own. The architects state that there would thus be a saving of 60*l.* a year, calculating 7½ per cent. on the outlay, as they would obtain for 130*l.* the same amount of light for which the Abergavenny Gas Company wanted 190*l.* on an agreement for twenty-one years. Trinity Chapel, High Wycombe, was opened on the 23rd of October. The building is in the Norman style, and built of Kentish Rag and Bath stone, with nave and aisles, 60 feet long and 40 feet 6 inches wide. They are divided by stone columns with carved capitals and semicircular arches supporting a clerestory above containing twenty windows, glazed with rough plate-glass, each in one square. The main timbers of the roof are open, and the chapel is flanked by two towers, containing staircases to galleries. The windows have stained glass, and the vestibule and aisles are paved with blue and red Staffordshire tiles. There are also boys' and girls' school-rooms, and ministers' vestry, &c. erected in the rear. The whole of the works have been executed by native tradespeople at schedule prices. Total cost, including warming apparatus, gas, boundary walls, &c. 2,459*l.* 3*s.* 6*d.* Mr. C. G. Searle was the architect. The interior of the Manchester Exchange is now completed, the last coat of varnish for the columns (which are painted in imitation of grey granite, and the pilasters in imitation of Sienna marble) has been given this week. The painting of the room does credit to Mr. Lomax, of that town, who has executed it. According to the local *Courier*, the extension, &c. of this building has cost 86,000*l.*—Some articles intended for Hackthorne Church, by the late Mr. C. Mainwaring, of Lincoln, and said to be of the value of nearly 300*l.*, were recently put up to auction by its executors, but purchased for the church by a liberal Jew broker of London, Mr. Benjamin Benjamins, who seems to have been ashamed of the Jewish (?) spirit of his *Christian* conferees.—We are glad to see that the gas companies are quietly acquiescing in the truth of the principle deduced from their own Parliamentary returns, that reduction of present and past prices uniformly yields increased consumption and larger profits. The Norwich (Company, in announcing a reduction to 5*s.*, with 5 to 10 per cent. discount, very plainly

betray their quiet confidence in this result by adding that, "whenever the increased consumption of gas on account of the reduction in price, or other circumstances; will enable the company to make a further reduction, the directors will most cheerfully extend to the consumers this advantage." And that they have already tested the truth of the principle is equally clear, for they reduced their charge in 1848, and are already building new and much enlarged works. The committee for erecting a new congregational chapel at Yarmouth having invited several architects throughout the country to submit designs in competition, the selection has been made in favour of a design by Mr. Kerr, of Norwich. The cost is estimated at 2,340*l.*, including railing, &c. The facing material is white brick, with moulded brick dressings,—the style after the Italian.—A movement is being made at Ryde for the erection of a new pier. Surveys and estimates have been made by Mr. T. Hellyer, architect, and a lithographed plan is in course of execution under his direction. It is proposed to have it of galvanized iron, about three times the width of the present one, with head in proportion.—The *Morning Herald* states that there is a great deal of disgraceful juggling and bungling going on at the new dock works at Devonport, and that on the reassembling of Parliament committees will be moved for to inquire into the present condition of these "new works and improvements."—On digging the foundations of a new church at Ilfracombe, an abundant spring of pure water, an article hitherto unknown in that town, has been discovered.—Many of the Sheffield gas consumers are complaining of being humbugged by their gas company supplying them with gas of so little illuminating power, that the cost of it is now greater than when the price was higher. It was to be expected that some black sheep would attempt to impose upon the public in response to their outcry for "cheap and good gas;" but such companies are really imposing on themselves; for they are thus destroying all chances of profit in the wide field of domestic economy, in which gas will come to be used only when it is both good and cheap. A clear conviction of the truth of this view will soon compel the companies to make their cheap gas good, for it is in the domestic extension of its uses that they must look for their most profitable return. As for the Sheffield company, however, the price, as well as the quality, of their gas is complained of, and the monopolisation of its manufacture, by the conversion of the two companies into one, is blamed. The price of coal there is only 8*s.* 9*d.* a ton, while that of gas is 5*s.* 10*d.* the thousand cubic feet, although coke yields more than the cost of the coal, namely, 10*s.* a ton!—Cobridge Church, in the Potteries, has been considerably damaged by lightning.—A silver model of the church of Lindfield, value 100*l.* has been presented to the pastor of the parish by the parishioners.—On Saturday in week before last, a new structure, named "Exeter Bridge," over the Derwent, at Derby, was opened. It is built of stone, and consists of three elliptical arches. The length is 200 feet, and the width 32 feet. Mr. James Trubshaw was the architect.—At a meeting of upwards of 2,000 ratepayers at Dewsbury, it has been resolved to establish waterworks in the vicinity, at a probable cost of about 15,000*l.*—The Bradford Gas consumers complain that, although the price of gas has been reduced at Huddersfield and Halifax to 4*s.*, and at Leeds to 4*s.* 6*d.*, they are still compelled to pay such prices as 5*s.* to 5*s.*, while their gas company is not only reaping ten per cent. profit, but "large bonuses" besides. They think it hard that with coals less than half the price, they should be called on to pay so much more than is now demanded in London and other large towns. A determination is therefore being come to "to stand it no longer."—A new savings bank is now nearly completed in Bury, Lancashire, situate at the corner of Manchester and Bank streets. It was built under the superintendence of Mr. Thomas Holmes, architect, and is a two-storied building. The lower story consists of a spacious bank, and waiting area for depositors; together with all the necessary arrangements as to safe, &c. required in an establishment of the kind: a staircase leads to

the upper story, laid out for either offices, or a suite of public rooms. The total cost was 845*l.*, exclusive of gas fittings. The contractors are Messrs. T. and J. Crossley, of Bury.—The new building belonging to the Haywood Mechanics' Institute at Bury is now nearly completed.—The Corporation of Newcastle contemplate the construction of two sewers, both of which will be of great extent and utility.—A grant of 1,650*l.* was made, during the last session of Parliament, for the improvement and extension of the building accommodation at the Botanical Gardens, Edinburgh. This grant is now in course of being expended by the Woods and Forests, and the intention, says the *Edinburgh Register*, is to convert the present class-room into a museum, and to erect to the westward of it a new and enlarged class-room. The museum will, like the buildings, be open to the public under certain restrictions.—The total capital raised by loan for the building of the New Corn Market, at Edinburgh, inclusive of 62*l.* of old materials, has been 17,119*l.* 3*s.* 2*d.*, which has been all expended except 562*l.* 6*s.* The expenditure embraces a sum of 1,091*l.* for obtaining the Act of Parliament; 4,727*l.* as the price of property purchased for the site; 9,498*l.* as the cost of erecting the new market; 1,065*l.* as interest and commission.

#### THE BURY ATHENÆUM AND ADJACENT BUILDINGS.

WE mentioned a few weeks ago the ceremony of laying the first stone of the Bury Athenæum, about to be built from the design of Mr. Sydney Smirke, architect. Annexed we now give the proposed Elevation of the structure, together with that of the New Public Buildings facing New Market-street, already completed, from the designs of the same architect, and which immediately adjoin the Athenæum, and form one pile.

The Athenæum will be Italian Doric in style, and will be lighted on the upper floor with seven windows, the pediments being alternately angular and circular. The lower windows will be rusticated. There will be a rusticated porch at the principal and central entrance, and each of the two entrances will be reached by a flight of stone steps, 6 feet wide. On the ground floor will be a news-room, 30 feet by 17½; a library of about the same size; a class-room, 43 feet by 15; a museum, 43 feet by 30; and a committee-room, 17½ feet by 15. Upstairs there will be a fine room for general purposes, measuring 102 feet 6 inches by 43 feet, and 28 feet high. This room on occasions of meeting will hold 1,000 persons. At each end there will be a gallery; under one gallery will be the entrance to an ante-room; and under the other, to class, lecture, and retiring rooms. The principal entrance, which leads to this public room, will measure 20 feet by 14; the second entrance-hall, leading to the reading-room and museum, will be 17½ feet by 9 feet. On the basement floor of the building there will be four class-rooms, of various sizes; and one end, measuring 43 feet by 30, will be devoted to public baths. It can be completed about the middle of next year. The cost has been estimated at 4,000*l.* Except some small ornamental portions, which will be of Hereford stone, the building will be constructed of stone from quarries belonging to the Earl of Derby. Mr. James Hill is the contractor for the masonry, and Mr. A. Denney for the woodwork.

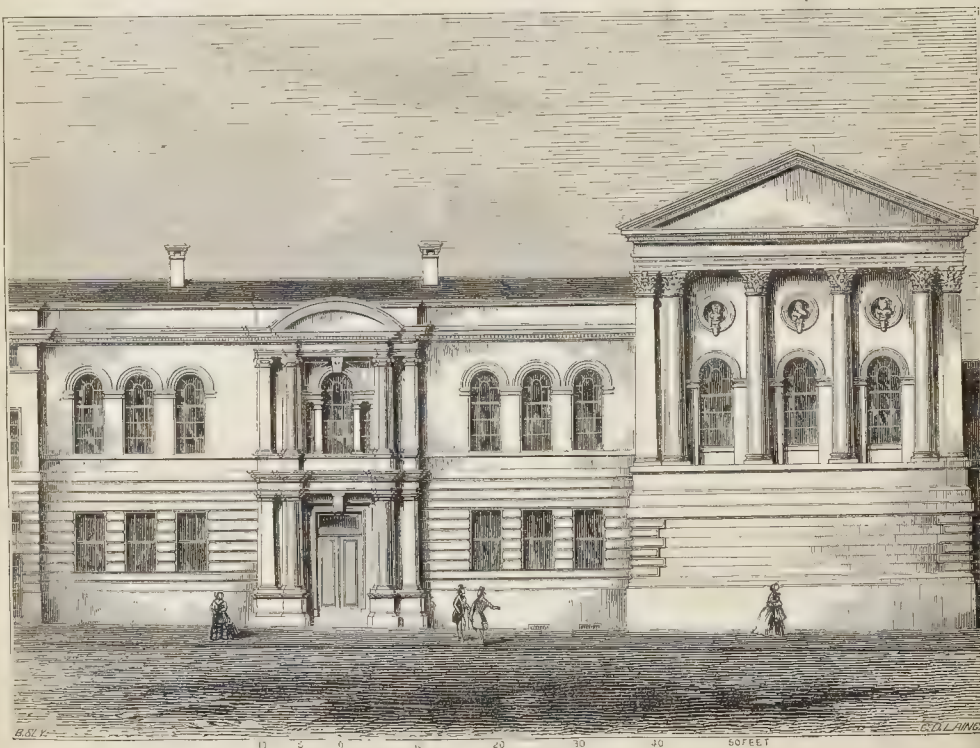
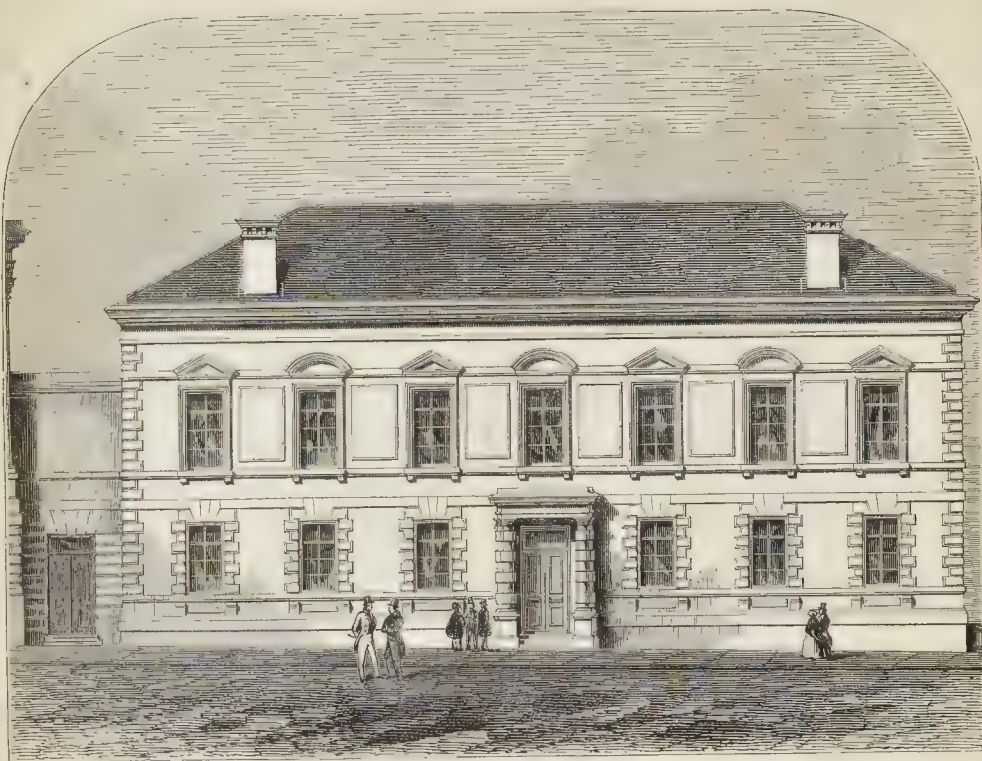
The new Public Buildings include a hotel, an assembly-room, a lofty court-house, with suitable offices, a police office, estate office (for the Earl of Derby), &c. The Assembly-room measures 70 feet by 36, and its height from floor to ceiling-centre is equal to its breadth. It has a vaulted groined roof, in three compartments (proposed to be painted in encaustic), with an "apse" for the orchestra in the centre of that side facing the door. The room is lighted with three principal windows at each end by daylight, and by three chandeliers at night. This room is said to be very successful both in effect and for speaking in.

EXHIBITION AT BELFAST.—It will be seen by an advertisement in last week's *BUILDER*, that an exhibition of modern works of art is being formed at Belfast.



## THE BURY ATHENÆUM, AND PUBLIC BUILDINGS ADJACENT.

MR. SYDNEY SMIRKE, A.R.A., ARCHITECT.





## NEW INDEPENDENT CHAPEL, BOSTON, LINCOLNSHIRE.

MR. STEPHEN LEWIN, ARCHT.



## INDEPENDENT CHAPEL, BOSTON.

THE new Independent Chapel of Boston, Lincolnshire, has been erected from the designs of Mr. Stephen Lewin. We give an engraving of it, because of the use that has been made in it of moulded brick, to meet the want of funds. This chapel occupies the site of the theatre, which was purchased by the trustees, and the materials re-used where possible in the new building.

The plan consists of a tower and spire at the north-west angle, schools for 400 boys and girls on the ground floor, and the chapel above the same, having a semi-circular apse at the end. The chapel is approached by a flight of seventeen steps, sixteen feet long, and the tower contains a staircase for the accommodation of the schools. The main entrance is under a semi-circular-headed doorway, the jambs of which are recessed with moulded brickwork. On each side of entrance are blank recesses, and, above, a moulded cornice with the gable perforated by a large rose window, divided by turned columns, with caps

and bases, into sixteen lights. The side walls of chapel are divided by buttresses of three divisions (which belong, by the way, to a later style), into five bays, having a square-headed window in lower part to light schools, and above a moulded cornice, with a semi-circular-headed window lighting chapel.

The semi-circular apse is pierced by three windows on ground floor, and above are seven windows in chapel. The tower, with the exception of the sills to windows, is entirely constructed of brick, of a tint approaching that of stone. The whole of the columns, caps, bases, cornices, arches, buttress, &c. are of brick, moulded and burnt for the purpose. The lower part of the tower has a deeply-recessed doorway, forming an entrance to the schools and chapel staircase.

The last story of tower has square piers at the angles with moulded caps and bases, above which are turned semicircular arches: the whole is crowned with a corbelled cornice, from which rises the spire, finished with an ornamental vane.

The interior of the chapel is divided by two aisles into three divisions of seats, the whole of centre seats on a level, the side tiers rising above one another with semi-circular seats at end: the pulpit is placed slightly within the apse, with seats round the same; the whole of the seats will be without doors,—the chapel is spanned by an open roof without a tie-beam; it is divided by trusses into five compartments, with segmental straining-pieces under each purlin: the trusses have semi-circular ribs or laminated arches formed by ten thicknesses of inch deal, eight inches wide, with wall pieces, hammer beams, and principal rafters in proportion.

The exterior length of chapel is 62 feet, the width 37 feet 6 inches, the internal length 56 feet 8 inches, the width 32 feet; the height of side walls from pavement, 31 feet; the height of gables, 46 feet; the tower height, 62 feet; the spire and vane, 48 feet, or a total of 110 feet. The whole cost of the building, we are told, will be about 1,300*l*.



### THE GLASS IN THE HYDE PARK BUILDING.

Sir,—The day is not far distant when the construction of, and the material employed in, the Hyde Park Building will become fair subject of criticism. The Building Committee acted prematurely in so readily abandoning their own opinions. In the original design great care was taken in deciding on the material to be employed: in the first instance, glass for the roof was specified, 24 oz. to the foot; this, after due deliberation, not being deemed strong enough for ordinary contingencies, was increased to 30 oz. to the foot, the most competent judges being of opinion that thinner glass would not be safe.

In adopting Mr. Paxton's design, one would imagine the building committee considered that they were relieved from further responsibility, as the glass now specified for the structure is of the cheapest and commonest description, viz., *sheet glass 16 ounces to the foot, or one-sixteenth of an inch thick*—an article quite unfit for any roof, especially in sizes 49 inches by 10 inches, such as are employed.

There is not a similar instance of cheap glazing in any third-class building to be found: the first respectable hail storm would demolish the whole, if not protected by the canvas outside, but which could not be permanently retained.

The total cost of the glass will be only 10,000*l.* Surely out of 150,000*l.* to be paid for the building, if it remain, something better could have been offered in the glass way.

CAMDEN.

### I HOPE FOR THE POOR INVENTORS.

THE promise made on the part of the Industrial Commissioners, and supported by the House of Lords, but foiled by the people's own House, the House of Commons, will not, it would seem, be allowed to fall into the dirt, and we rejoice to think so. Every one is aware of the good understanding which subsists between the Society of Arts and the Industrial Commission. We do not pretend to have any official authority for saying so, but we doubt not the public will see, in the announcement now to be made, that the promise of the Commission is about to be supported at least, if not fulfilled, by a committee of noblemen and gentlemen, members of the Society of Arts, who have consented to act in the promotion of a "legislative recognition of the rights of inventors by means of an easy registration of them in accordance with the principles agreed on by the council of the society in 1849."

These principles are—

1. That inventors, designers, &c., ought not to be subjected to any other expenses than such as may be absolutely necessary to secure to them the protection of their inventions.
2. That the difficulties and anomalies experienced in connection with patents should be removed.
3. That the present term of copyright in design for articles of manufacture, and the protection afforded to the authors\* and proprietors of inventions, and of designs in arts and manufactures, are inadequate.
4. That for carrying out these objects, the co-operation of all persons interested therein be invited.

The points on which the committee wish particularly to obtain information are, first, the effect which the existing system of patents may have had in suppressing, and thus depriving the public of the knowledge and use of, the inventions of those who are unable to bear the heavy expenses required under it; and, secondly, instances where the expenses have been fruitlessly incurred. The committee request that any facts in any way bearing upon these points may be forwarded to them.

The members of this commission have undertaken a very onerous task, that will require great discretion and discernment to prevent the remedy from being worse than the disease. The evils of the present system are very great, and urgently demand a remedy, but to cope with the cunning of fishing carvets and all the other plundering tricks and practices of patent-barriers and pirates will require no little skill and clear-steering while opening a fair way to poor inventors. The harassing annoyance and deadly effect of law proceedings in the hands of pirates flush of cash, with the

\* Why should authors of inventions and designs be less cheaply or freely protected than authors of books?

legal pistol ready to blow out the brains of poor inventors, must not be overlooked: a cheap tribunal, in which mere money would not constitute power and right, is a great desideratum in patent law reform. And still, stringent measures for the suppression of a host of peddling and contemptible "improvements" and "inventions" that would otherwise shackle and entangle every trifle in the meshes of a cheap patent law, and thus obstruct, in place of promoting, inventive progress, are to be strongly recommended. In short, all the sagacity of this enlightened committee will be requisite to the proper fulfilment of the task which they have undertaken.

Among its members are the Marquis of Northampton, Lord Radnor, Sir J. P. Boileau, Sir J. J. Guest, M.P., Mr. Milner Gibson, M.P., Mr. H. T. Hope, M.P., Mr. S. M. Peto, M.P., Mr. H. Cole, Mr. Charles Dickens, and upwards of twenty other able or influential men.

A "Patent Law Reform Association" has also been formed, by members of the South London Committee for the International Exhibition, and which, we hope, will come to a good understanding with the committee of members of the Society of Arts for the efficient promotion of their one common object.

### RAILWAY JOTTINGS.

A LINE of three-and-a-half miles, at a cost of 50,000*l.* is proposed from Brentford to Wormwood Scrubbs, to unite the South-Western, Great Western, and North-Western.

—The Great Northern are about to consider the expediency of extending their line by an independent route into York, instead of running over the York and North Midland.

The Midland are conveying passengers between Rotherham and Sheffield at the rate of one farthing a mile. The cheap fares on the Tyne-mouth branch of the York, Newcastle, and Berwick line have very largely increased the number of passengers, and the receipts are now greater than under the old system. The charges are—first class, one penny a mile; second class, one half-penny. We are glad to find that the companies are becoming inclined to give a fair trial to a change of system which we have long recommended, and more so that they are profiting by it.—It appears that the portion of the West Cornwall line from Penzance to Hayle, estimated to cost 70,000*l.*, can be executed for 40,000*l.* The contract for the entire completion of the line from Hayle to Penzance Pier has been taken at 29,100*l.*

Kilkenny is now connected by rail with Dublin. The works connecting the South-Eastern Extension with the Waterford and Kilkenny line at Lavistown have been executed by Messrs. Meehan and Mulquany as sub-contractors.

—The Sydney papers contain an account of the commencement of the first Australian railway. It is to extend from Sydney into the interior.—The contract for the construction of the Calcutta experimental line has been taken by Messrs. Elmslie and Co. of London, whose tender was the lowest. The tenders for the Bombay and Tanna line (about twenty miles in length), were lately sent in.

### A SCULPTOR'S VIEW OF THE ARCHITECT.

IN the course of a very interesting lecture on the application of high art to sculpture, delivered last week in Edinburgh by Mr. Patric Park, the lecturer observed, that great injury to art had ever been done in this country by an appeal to precedent; but he trusted that the good sense of the country would gradually emancipate itself from that desperate tyranny, and that they would believe the truth that their natural perceptions were quite as good now as those of their ancestors or of foreign nations, and that they would resolve to think for themselves, instead of mistrusting their own judgment. In architecture there appeal to precedent had done infinite harm—not, however, that judicious appeal which aimed at acquiring knowledge, but that which justified error because it had been consecrated by time. He rejoiced at the improvement apparent in church building. Architecture, however, must give up its absurd claim to regulate the character of statues in certain interiors. The architect may make the walls and the floor, and he may decorate and paint them; he may

make the pedestal, when the sculptor's judgment has pronounced the proper height; but he shall not step out of his proper sphere, and control the sculptor's intellect. The study of nature, like a landscape painter, is no less the duty of him who would be a great architect, than is the study of nature and the other branches of the fine arts, if he means to become anything better than a bricklayer, and the application of this high test is no less important to the public in architecture than it is in sculpture and in painting. The great architect is a great power which we cannot contemplate without profound respect. Approaching to even a controlling mind, providing for and anticipating the lowest physical wants and the highest intellectual requirements; regulating decoration with the eye of a painter. Providing light to meet every possible necessity; to harmonise action with thought, so that his walls, his roofs, his stairs, will each in their several relations be in unison with each other, with the spectators, with the domestic, the family, or the public. He is a sanitary magistrate, a good butler, an experienced cook, a constructive engineer, and a smoke doctor. He ministers to the luxuries of a princess in her bath-room and her boudoir, and to the comforts of the shoe-black in the scullery. He is a magnate in the church, and a manager of a theatre. He is an excellent gardener, and generally a good lawyer. He is a Slater, a carpenter, a mason, and a plumber. He rises early and goes to bed late. He can do without his dinner when at work, and he can banquet without forgetting he has to rise in the morning. His levee is like that of a prime minister, attended by representatives of all classes, and all seeking favours. He is hand and glove with the groom and the watchman; the hares and dogs look to him for comfort; the lady's maid has her sly favours to solicit, from the hinge of a work-box to the key of the strong box, his services are called on as a banker: he is omnipotent; the sight of an architect creates a jubilee among the artisans of a country side; the whisky seller, the baker, and the butcher rejoice in his presence; he is prospective of comfort and work; he causes marriages, and, alas! sometimes deaths; he is the dispensing hand, which circulates among the industrious the wealth of the great. He is a man whom all honour and esteem, when the man who is in this relation to mankind is a great artist: without that grand qualification, the preceding character tumbles down like a pack of cards built up, as unsubstantial as his renown. He (Mr. Park) held, then, that great art was a necessity, and that a lofty standard of national morality and intelligence would be so much ennobled the aims of the artist: that a low class of mechanical art, based on mere trading principles, could never meet the upward sensibilities of mankind; and that its encouragement by the public was a direct proof of a compromise which should never exist between good and evil.

### ON GOVERNING THE COURSE OF BALLOONS.

MORE than fifty years have passed since the ascent of the first balloon; but this beautiful invention, which seemed to promise so much for science, remains still little better than a mere toy, applicable to no useful purpose. Such it must ever remain until some means be discovered of propelling it independently of the wind, or of governing the direction of its course, in spite of the wind. It is now several years since a principle presented itself to my mind, by which, I believe these objects may be effected. And as I seek for no exclusive benefit from the suggestion, I proceed to lay it before the world, through your pages, that it may receive from practical men of science that measure of consideration to which it may be entitled; and, should it prove available, that the plan may be adopted for the public good, without restriction.

The principle I suggest is exceedingly simple. Let the propelling power be the impact of a jet of elastic fluid (such as steam or highly condensed air) upon the atmosphere. Let this jet be poured through a narrow tube, directed towards the point opposite to the balloon's intended course. When I consider the immense force with which a jet of steam



rushes out of the waste-pipe of an engine, I cannot but think that such a power exerted horizontally, would forcibly impel a floating body through so subtle a fluid as the atmosphere.

In order to apply this power, however, it must always be made to impinge upon the surrounding air, in the direction opposite to the desired course. To secure this object I suggest that the boiler, or containing vessel, should have a rotary tap, into one side of which the horizontal pipe should be fixed, while the opposite side should be furnished with a tiller, or with a rack, so as to be capable of being partially turned on an axis. This top being rotatory could be steered as with a ship's wheel, or other machinery, so as to present the jet towards any point of the compass at will.

I do not imagine that the application of this principle could effect a progression against a strong breeze, but in moderate weather, with the wind at any point behind the beam, I suppose it would enable the aerial navigator to lie his course, or, even with a moderate breeze abeam, so to compound the forces as to make way by tacking. Perhaps the weight of the apparatus, water, fuel, &c. would present a barrier to the employment of steam as the motive power; but air in a highly elastic form, compressed by means of a forcing-pump, might possibly require machinery that would not be beyond the powers of a balloon to carry. Might not a succession of discharges of air highly rarefied be produced by a series of explosions of gun-cotton? This substance is very light and easily compressible into a small bulk, and a very simple apparatus might be sufficient for its employment. The first balloon that ever elevated human beings into the air contained 60,000 cubic feet, and carried a weight of about 1,700 lbs.—P. H. Gosse.

#### DESIDERATA IN HOUSE BUILDING.\*

In every part of our houses there is room for improvement. We want walls combining warmth, cheapness, durability, and strength, faced with a material that shall imbibe neither the damp nor the smoke, and which an occasional abutment will make as good as new. We want a substitute for the everlasting paint-pot, or scaffolds, and stench. Cannot this be effected by the use of bricks, hollowed, hardened, glazed, coloured, and moulded, as the case may require? We want fireproof constructions for our floors and our partitions, not too heavy to be carried by ordinary walls. We may learn much from the French and Germans in their windows, and the fastenings thereof. The English sash, with its ropes, pulleys, and weights, must be superseded at last. The Crystal Palace will itself suggest the use of glass for our roofs, and, as the year of the exhibition is, we trust, to be appropriately chosen for the repeal of the odious window-tax, there is no reason why every house of any pretensions built henceforth in this country should not have a transparent roof, and be thereby enabled to utilize the space between it and the attics. The ventilation and warming of our houses demand a reform. At present we are exposed to the tortures which Milton assigns to some classes of the damned—we are suspended between a furnace and a draught, sitting before blazing fires knee-deep in streams of cold air. We want plans for diffusing a temperate atmosphere through all the rooms of a house, without a fire in every one of them, which few can afford, and which is far from advisable. The English might learn a good deal from the stoves in use through the continent, especially those of Russia and Sweden. We want also a mild substitute for the feather bed and triple blanket, in which so many of our countrymen are still nightly stewed from November to May. Among other desiderata may be enumerated a more economical and effective kitchen apparatus, especially one that shall consume its own smell, or otherwise dispose of it;—a mode of internal communication which shall dispense with the bell, and, if possible, also with the journey of the servant to ask what is wanted;—window blinds that shall answer their various purposes better than either holland, or wire-gauze, or Venetian blinds, inside or out;—plates and dishes that shall not break quite so fast;—furniture that shall not compel careful housekeepers to shut out the sun; and decorations that will stand

the air of London more than three or four years.

#### Books.

*A Hand-Book for the Parish of St. James, Westminster.* By the Rev. MACKENZIE WALCOTT, M.A. London: Skeffington, 1850.

THIS pleasant and useful little volume will serve to make the houses of Pall-mall, St. James's-street, and the Haymarket more suggestive, to many, of past men and times, than they have hitherto been. "The canopy of smoke, the ceaseless importunate din, are to many the only characteristics of the metropolis. They pass without one solid thought the suggestive presence of its countless buildings,—without emotion jostle through the crowded thoroughfares, to them only the roads that lead to their places of business, concourse, or listless amusement, intent only upon their own selfish errands. Little do they wot of the outpouring of human energy, or reck of the great truth that every house has its momentous history; there the drawn curtain telling that the dusky footsteps of the Silent One have crossed the threshold; there the light ringing voices, and strains of merry music, are the notes of preparation for some home-festival; and there the last of his race, without a mourner, is borne away to the common city of the dead."

The changes which a few years have made in the parish are marked in the following paragraph in Mr. Walcott's peroration. "We have been treading through the stream of Time, upon the stepping-stones of Civilization, marking how Piccadilly is no longer a quagmire, with herbalists looking wistfully for the pretty blue-eyed bugloss, where the banks were dry. We have glanced at the period when, in the fields round the Haymarket, good housewives went out to spread their snowy linen on the green turf to bleach; and along the modern Conduit-street, where, not two centuries since, the sportsman shot the snipe; and Dr. Sydenham pursued the thief, who stole his silver tankard from under his very eyes, until he grappled with him among the bushes in Bond-street." In the registers of St. James's are found, amongst many others, William Vande Velde, under date 1693, Dec. 16; Michael Dahl, Swedish portrait painter, the rival of Kneller, 1743, Oct. 26; James Gillray, the caricaturist, 1815, June 7; and G. H. Harlow, the painter, 1819, Feb. 16.

*The Journal of the British Archaeological Association.* No. XXIII. Oct. 31st.

THE new number of the Journal makes a very interesting and valuable volume. Not long ago it would have been considered of itself an ample return for the guinea subscription to the society. It is wholly occupied by the papers read at the Lancaster and Manchester Congress, and includes Mr. Pettigrew's paper on Archaeology, Mr. Aschepitel's on Manchester Cathedral, Mr. Planché's on the Stanley Crest, Rev. Mr. Bruce on Norman Fortresses, Mr. Harland on Ribchester, Mr. Whittaker on Local Nomenclature, Mr. Gilbert French on the Tippets of the Canons Ecclesiastical, Mr. Grogan on Chetham's Hospital, Mr. Sharpe on Furness Abbey, &c. &c.

#### Miscellaneous.

THE HAMMER.—The hammer is the universal emblem of mechanics. With it are alike forged the sword of contention and the ploughshare of peaceful agriculture—the press of the free, and the shackles of the slave. The eloquence of the forum has moved the armies of Greece and Rome to a thousand battle fields; but the eloquence of the hammer has covered those fields with victory or defeat. The inspiration of song has kindled high hopes and noble aspirations in the bosoms of brave knights and gentle dames; but the inspiration of the hammer has strewn the field with tattered helmet and shield, decided not only the fate of chivalric combat, but the fate of thrones, crowns, and kingdoms. The forging of a thunderbolt was ascribed by the Greeks as the highest act of Jove's omnipotence, and their mythology beautifully ascribes to one of their gods the task of pre-

siding at the labours of the forge. In ancient warfare the hammer was a powerful weapon, independent of the blade which it formed. Many a stout skull was broken through the cap and helmet by a blow of Vulcan's weapon. The armies of the crescent would have subdued Europe to the sway of Mahomet; but on the plains of France their progress was arrested, and the brave and simple warrior who saved Christendom from the sway of the Mussulman was Martel—"the hammer." The hammer, the saviour and bulwark of Christendom! The hammer is the wealth of nations. By it are forged the ponderous engine and the tiny needle. It is an instrument of the savage and the civilised. Its merry clinks point out the abode of industry. It is a domestic deity, presiding over the grandeur of the most wealthy and ambitious, as the most humble and impoverished. Not a stick is shaped, not a house is raised, a ship floats, or a flag waves, without the hammer. Without the hammer, civilisation would be unknown, and the human species only as defenceless brutes; but in skilful hands, directed by wisdom, it is an instrument of power, of greatness, and true glory.—*The Scientific American.*

THE ARCHEOLOGICAL INSTITUTE.—The first ordinary meeting of the Archaeological Institute for the session of 1850 and 1851, was held at their rooms in Suffolk-street, on Friday, the 1st inst., Mr. Edward Hawkins, F.R.S., in the chair. Several communications were read; amongst others, one from Mr. Birch, of the British Museum, being the description of an ebony stud and plinth brought from Egypt by the Marquis of Northampton, bearing the name of Amenophis the Third and his daughter, a queen, and supposed to have been part of the inlaying and fastening of a box. Wherever the name of this king appears on the monuments in Egypt, it has been very carefully obliterated, and on the stud and plinth in question both his name and that of his daughter had shared the same fate, probably owing to the religious animosity that prevailed in Egypt after his death between the *Aten*, or "disk" worshippers, and those of the older religion of *Ammon*. Mr. Birch also pointed out that this plinth showed that Amenophis the Third associated with himself in the empire a princess, the daughter of himself and the Queen *Taia*, probably the so-called Princess *Amen-si*, a new fact in Egyptian history. On the table were exhibited some works of ancient and mediæval art, including a beautiful silver gilt cinque-cento cup and cover, inlaid with cameos and enamel, a fine carved ivory triptych, and a silver-gilt collar composed of medallions decorated with coats of arms and emblems of archery, with a popinjay suspended from it, bearing the date of the 17th century, evidently belonging to some distinguished archery society.

CONSUMPTION OF SMOKE AT MANCHESTER.—The result of the enforcement of the Act for purifying Manchester from smoke appears to be most satisfactory. One of the council reports, among other particulars, that he lately waited on Mr. Hugh Beaver, and ascertained that the quantity of coal formerly used in his manufactory was seventy-eight tons per week, whilst a weekly saving is now effected of twenty-eight tons. "I visited Messrs. George Clarke and Sons' manufactory," continued Mr. Howarth, "and they told me the saving they effected was upwards of forty tons per week: they formerly used 140,—now less than 100. They have expended upwards of 1,200l. on new boilers to abate the smoke nuisance, and they expect the outlay will be repaid by the saving of coal effected, in a year and a half. I asked them," continued Mr. Howarth, "if they did not thank us for enforcing the system? The reply from Mr. Clarke was, 'Undoubtedly; and I wish you would enforce it more strictly upon our neighbours: it would save no trifle in the cleaning of windows, as well as prove beneficial to the public health.'"

A MONOLITH FOR THE LATE GEORGE STEPHENSON.—According to the *Derby Mercury*, Mr. James Trubshaw, architect, has under his consideration at the present moment the project of erecting a monument to George Stephenson, in one single stone, which would be several feet longer than Cleopatra's needle.

\* From the Times.



**METROPOLITAN COMMISSION OF SEWERS.**—The ordinary monthly court was held on Friday last inst. Amongst new works ordered on the recommendation of Mr. Forster were 110 feet of 12-inch pipe sewer in Cardigan-street (district rate), at an expense of 154.; 70 feet of 15-inch pipe sewer in Gloucester-place, 177. 10s.; trapping gullies in Clifton-road, &c., at an expense to the district of 14s. 6d. each. Mr. Forster also suggested, in order at once permanently and satisfactorily to drain the whole of St. James's parish, that the following extensive works should be carried out:—First, at the expense of the district, being re-constructions:—

2,194 feet $\frac{1}{2}$ brick sewer, 3 feet 9 inches by 2 feet 3 inches, in Queen-street, Great Windmill-street, Marshall-street, and Tylor-street.....	1,012	17	6
70 feet do. do. in Broad-street.....	32	7	6
490 feet do. do. in Great Pulteney-street.....	220	12	6
860 feet do. do. along King-street to Argyle-street.....	351	15	0
200 feet do. do. in Warwick-street.....	83	10	0
320 feet do. do. in Argyle-place.....	133	0	0
440 feet do. do. in Argyle-street.....	181	10	0
250 feet do. do. in Blenheim-street.....	93	15	0
280 feet do. do. in Marlborough-mews.....	91	0	0
500 feet do. do. in Brewer-street.....	231	2	6
160 feet do. do. in Silver-street.....	68	0	0
100 feet 12-inch pipe sewer in Blenheim-street.....	25	0	0
150 feet do. do. in Blenheim-mews.....	37	10	0
200 feet do. do. in Queen-street.....	50	0	0
125 feet do. do. in Nag's Head-yard.....	31	5	0
230 feet do. do. in Smith's-yard and court.....	69	0	0
280 feet do. do. in Wellington-place.....	70	0	0
220 feet do. do. in Dufour's-place.....	66	0	0
180 feet do. do. in Cross-street.....	78	7	0
280 feet do. do. in Cross-court and South-row.....	50	0	0
200 feet do. do. in West-street.....	50	0	0

Total cost, 3,031l. 12s. And secondly, the expense to be defrayed by a special sewers' rate, the streets and places where the works were to be executed not being co-extensive with any separate sewerage district:—

240 feet of $\frac{1}{2}$ brick sewer, 3 feet 9 inches by 2 feet 3 inches, in Brewer-street.....	111	0	0
170 feet do. and 100 feet of 12-inch pipe sewer in Silver-street.....	100	2	6
280 feet of 12-inch pipe sewer in Golden-square.....	72	10	0
80 feet do. in Sheppard-place.....	22	10	0
80 feet do. in George-passage.....	22	10	0
80 feet do. in Marlborough-court.....	20	0	0
80 feet do. in Lowndes-court.....	20	0	0
120 feet do. in Pew's-place.....	30	0	0
180 feet do. in Little Marlborough-street.....	47	10	0

Total cost, 446l. 2s. 6d. Total quantity of brick sewer, 6,099 feet, and of pipe sewer, 2,935 feet.

The Court agreed that owing to the great magnitude of these works, the recommendations contained in the report should stand as a notice for next meeting, as it was not desirable to undertake such works without letting the public know what they were about.

**OMNIBUS IMPROVEMENTS.**—Among the applications for space in the great House of Industry, is one for a working model of a new system of propulsion, which dispenses with the locomotive and its noise and smoke, and which the patentee, along with the British Inventors' Protecting Company, propose to apply to the omnibus traffic of the metropolis and other large cities, in such a manner as not to cause any interruption to ordinary street traffic. A working model has been exhibited in the Polytechnic Institution. —Mr. C. J. Pownall, of Addison-road, Kensington, has patented an omnibus tell-tale, for registering the number of passengers who enter the vehicle. An elastic step is pressed down by the foot of the passenger in getting up, and completes an electro-magnetic circuit in a concealed apparatus, which registers each full depression of the step. The idea is no doubt ingenious enough, but we doubt its working well in every-day use. The moment any one puts his foot upon the step and registers his number, either he is in for it or the conductor is so, and it is but too easy to guess the result of such a "registration" on the temper and the tongue of either, when "the wrong omnibus" happens in a hurry to be even momentarily stepped on.

**CHANCERY-LANE.**—It appears to be not only possible, but probable, that notwithstanding all that has been said, the present singular opportunity of converting this lane into a double wheel-way throughout, by widening the Holborn end of it, at the eastern corner, recently laid open, is to be neglected and lost, although Mr. Taylor, who has worthily exerted himself while cold water was being cast at all hands on his endeavours, has managed to reduce the whole estimated cost of the measure to 2,000l., of which the Paving Commis-

sioners are still willing to pay 750l. Why, a tablet of marble commemorative of the donor's liberality, and planted in the corner wall of Lord Radnor's premises at the head of the lane, would be itself well worth the whole amount. What think you, my Lord Radnor? As the ground landlord of so much valuable property in that precise locality, your lordship will not object, we hope, to the erection of such a tablet,—even to your own honour and glory. It would be almost a pity to allow the Paving Commission of the public, to have any place in an inscription so perpetually exciting to the public gratitude for a private benefaction.

**WHITE ZINC.**—Mr. E. Protheroe, of Austin-friars, has taken out a patent for improvements in the manufacture of zinc oxide for paint. He claims, amongst others, an arrangement of apparatus, consisting of a reverberatory furnace, in which the zinc is melted, and two retorts, in communication with each other, into which the metal flows; so that a constant clean surface of melted zinc is kept submitted to the action of currents of atmospheric air. The lighter portions of the oxide pass up a shaft, and, by a current of steam, to the condensing chambers, the air passing off through suitable chimneys. Bleaching the light oxide by means of water acidulated with sulphuric or acetic acid, and combining the same, to facilitate its drying, with umber, dissolved in muriatic acid over a fire, concentrated to the consistency of butter or honey, and mixed with resin, are also amongst his claims.

**A LARGE MOUNTAIN OF QUICK-LIME!**—A singular and important discovery, it is said, has been made at Applecross, on the west coast of Scotland. A large mountain called Tore More, on being accidentally excavated, presents a substratum of pure lime, within five feet of the surface; and it is ascertained beyond a doubt that the whole mountain, except an average surface of twenty feet, consists of lime fit for the field or the mason. The hill appears to have been at one time a stupendous limestone rock, submitted to the influence of immense heat. On the summit are found traces of volcanic origin.

**SOCIETY OF ARTS.**—The first meeting for the coming session will take place on the 13th, when Mr. Paxton will read a paper on the building in the park. On the 20th, an exhibition will open of articles patented and registered during the last eighteen months, with the view of practically showing the state and progress of invention during that period. This is intended to be the first of a series of annual exhibitions, each of which will open the sessions of the society, and will embrace all the inventions of the preceding twelve months. The idea appears to be a good one.

**ALLMAN'S VOLTAIC LIGHT.**—Mr. Allman's patent light, it is said, has obviated the objections which it was ultimately fully admitted that we were right in making as to former attempts, at a time when all were assured that gas was about to be extinguished. A trial of this new endeavour for several hours has been made at the Polytechnic Institution, which we understand was very successful. We have not yet seen it ourselves. One great point said to be gained is the mobility of the electrode by the electric current, according to its own requirements, without any special mechanism: another is, the obtainment, by these and other means, of a steady and continuous light.

**THE ROYAL ACADEMY.**—As we fully anticipated, Mr. C. L. Eastlake, has been placed in the Presidential Chair. This, we suppose, will remove Mr. E. from the Secretaryship of the Fine Arts Commission, and be a loss to him in a pecuniary point of view. A vacancy in the list of Associates was filled by the election of Mr. Hook.

**DECORATION AT DRURY-LANE THEATRE.**—The decoration of Drury-lane Theatre by Mr. Fred. Gye, for the ball on Thursday night, and which we suppose will remain for the coming series of concerts, is exceedingly successful, offering a striking contrast to the melancholy failure in this respect at another stage for the "National Concerts."\* The stage is lined with white, powdered with roses

\* In consequence, apparently, of our observations on the latter, they have been trying to improve the wooden "scalops" to the boxes, and the undertaker's *eschérons* at the back; but nothing can be done with them.

in gilt wreaths; the chandeliers are carried by wreaths of roses, and statues of the "Nine" are cleverly disposed against back-grounds of pink-shaded gauze flags. The fronts of all the boxes have cream-coloured hangings with swags of artificial flowers: the effect of the whole most summy and pleasant. The glass curtain, which we once described, has been brought back and added to; it includes now, according to a calculation, as nearly as may be, 90,000 glass drops.

**SALE OF GLASTONBURY ABBEY ESTATE.**—This property was divided into three lots. The first comprised the Abbey, which had cost 8,000l. in its erection; the ancient ruins, and about forty acres of rich land. The first offer was 7,000l.: the lot was sold for 10,000l. The next lot consisted of a residence let at 40l. a year, and an acre of ground attached: these went for 1,150l. The estate was purchased by Mr. H. Danby Seymour, M.P. for Poole. The chancel was to be sold to that gentleman by private contract.

**BELL TURRETS FOR BURGLARIOUS TIMES.**—A correspondent, R. M., suggests that the proprietor of every lone house should have a large bell hung conspicuously on the top of his house, with cords communicating with two or three of the principal bed-rooms, so that upon hearing thieves in the house alarm may be given to the whole village. The fact of its being there would in all probability be a preventive to an attempt. The turret bell is an old plan, but at present almost out of use. Architecturally it makes a nice feature. We have had several inquiries as to modes of securing particular houses from thieves, but must leave it to the individual advisers of the parties in question. Iron plating in panels of doors and window shutters, bars from side to side, and small dogs, are efficacious.

**TANKS FOR CATTLE.**—A correspondent suggests that railway directors ought to have water tanks prepared at their respective depôts for the cattle sent to town by rail, as the protruding tongues, and other revolting and even alarming symptoms of thirst displayed by the poor brutes, but too plainly bespeak the want of such accommodation, which is all the more urgent that, strange to say, there is none even at Smithfield. The suggestion has been repeatedly, but it is painful to think how uselessly, urged in these columns.

**PLAN OF THE BUILDING IN HYDE PARK.**—Mr. Wyld, with his usual promptitude, has had a penny plan of the Exhibition building prepared for the million.

**DRAINING AT HAARLEM.**—A report made to the Legislature of Holland states the successful progress of the works for laying dry the Haarlem Meer. The advances made amount to 666,000l., and a further sum of 160,000l. is to be raised, of which the expenditure of 100,000l. can be spread over several years. It is expected the whole undertaking will be completed in 1854.

**THE REGENT'S PARK.**—It is understood that the Commissioners of Woods and Forests have at length determined that this park shall be properly drained, and Mr. Fulton, engineer, has been instructed to report as to the practicability and expense of such an undertaking.

**NEW SURVEY OF CANNINGTON PARISH.**—Mr. Haawkes, of Williton, has been appointed to make the new survey of the parish of Cannington. He is to receive 52 guineas for his services.

**MALVERN ABBEY CHURCH.**—At Great Malvern Abbey Church, a new organ, built for the church, was opened on the 24th ult. Various works have been going on in this interesting old building for some time past,—unfortunately, however, not under professional direction. The same zeal which has been displayed here in doing mischief, would, under proper advice, have effected much good.

#### TENDERS

For the Sunderland Baths and Wash-Houses, Mr. Oliver, architect. The following tenders for engineering have been received:—

Gibb and Son, Newcastle.....	47s.	0	0
Gibb and Son, Newcastle.....	780	0	0
Wight and Son.....	760	0	0
Lamb, Sunderland.....	760	0	0
Watson, Newcastle.....	766	0	0
Clark, Monkwearmouth (Accepted).....	794	0	0

The engineering work includes 1 large boiler, 1 hot and 1 cold water cistern, 12 zinc baths, 4 shower-baths, 2 vapour baths, hot water and steam fittings to 34 wash-tubs, drying closet with 34 hoses, heating-plate, ventilators, 3 self-acting water-closets, pipes, &c.



have met with for the twelve years they have been in business, and to assure their friends and the public, from their practical experience of upwards of twenty years' standing, they are enabled to execute Maps, Plans, Architectural and Landscape Drawings, Show Boards, Law Forms, Bill Heads, Circular Letters, and every description of Writing and Drawing in a first-rate manner, and







# The Builder.

No. CCCCVI.

SATURDAY, NOVEMBER 16, 1850.

**I**F we were to give a full, true, and particular account of what took place on Saturday last, the 9th of November, when, as in Shakspeare's time and words,—

“London did pour out her citizens,  
The mayor and all his brethren in best sort,”

commencing in the morning when the old lord and the new lord breakfasted together in Guildhall, and ending with notes of a quadrille in the council-chamber at the same place (after the banquet), amid a crowd composed of all sorts of men, from Lord John down to a “good apprentice,” wherein Tom Brown and John Jones (and ever may it be so) rubbed shoulders with her Majesty's ministers,\* and inwardly resolved to achieve the same position themselves, seeing that it only needs a strong determination and a little luck,—some of our readers might say we were travelling out of our right-lined path into flowery meads for our own enjoyment rather than their information. Therefore we will not do it. We will not tell how, paraphrasing a rhyme of an early time,—

“Selected citizens, 't' th' morning all,  
At ten o'clock did meet in old Guildhall:”

we will say nothing of the marshalling of the procession, the “progress” to Westminster, through dense crowds piled up to house-tops, or of the dinner, as a dinner, with its blaze of lights, clanging trumpets, barons of beef served from high pulpits, strong speeches, and the “loving-cup,” with Gog and Magog in Barbaric splendour looking down grimly on the whole. It is, nevertheless, a wonderful sight, this dinner, and would lead most persons to agree with Thomas Middleton, who wrote the “Triumphs of Truth,” in 1613, that—“Search all chronicles, histories, and records, in what language or letter soever—let the inquisitive man waste the deere treasure of his time and eyesight—he shall conclude his life only in this certainty, that there is no subject upon earth received into the place of his government with the like state and magnificence as is the Lord Mayor of the City of London.”

All this, however, we let pass: but having been so fortunate as to lead the City authorities to attempt an improvement of the Mayor's “Riding,” or “Show,” we should be wanting in our duty—that is, to ourselves—if we omitted to record the fact. The suggestions printed in page 493 were referred by the Lord Mayor and Sheriffs' Committee to Mr. Bunning, the energetic city architect, and he called in to his assistance Mr. F. Fenton and Mr. Batty, by whom the representations suggested were carried out.† We should be wrong if we said it was done as well as it could be: the parties engaged upon it would not say so: the time was short, the matter novel: but it was, never-

theless, very well done, entitled those who did it to thanks, and gave general pleasure to the countless thousands who witnessed the procession. Next year it will, doubtless, be improved, and made fully “accordant with the ancient character of the show, and worthy of the present time.” Amongst the few accidents that occurred at starting, the emblems of Art were ominously disrupted by the jerking of the horse that bore them, and Minerva, who surmounted them, descended from her high place as if despising an artificial elevation. On the return, however, this was set right.

The want of a new thoroughfare in the city was strongly felt on that day, and those who are careless about enlarging the mouth of Chancery-lane, if they had been fixed there for half an hour, as we were, on that morning, might have been stirred to exertion. The necessity for alteration on Ludgate-hill, too, where it opens into St. Paul's-churchyard, was seen: and we hope, by the way, relative to this much-needed improvement, that it will not be forgotten that the Dean and Chapter of St. Paul's have expressed their willingness to open the area in front of the cathedral when this approach is widened. We hope soon to hear of something being done inside St. Paul's: the windows should be filled with stained glass, the paintings in the dome renovated, and the walls adorned with colourings. If the leading artists of England were to offer now, as they did many years ago, to decorate the interior of the cathedral gratuitously, the offer would probably not be refused. The present dean has a fine opportunity to connect his name worthily with the building, and will, we hope, avail himself of it. The fore-court will very shortly be opened to the public during the day. On Saturday the custodians made (fairly) a rich harvest by admitting spectators within the rails, all glad enough to escape the pressure from without. In an adjacent street some jugglers and rope-dancers were quietly practising their art, and recalled to us an incident described by Leland in his record of a triumphal passage through the city in February 1546-7. The account, as quoted by Mr. J. G. Nichols, in his “London Pageants,” says:—“There was a rope as great as the cable of a ship stretched from the battlements of St. Paul's steeple, and fastened to a great anchor, which was fixed near the gate of the Dean's house. When the king approached, a man appeared (who was a foreigner, a native of Arragon) lying on the rope; and with his head foremost, throwing his arms and legs out, he slid down on his breast from the battlements to the ground, as it had been an arrow from a bow. He came to the king, and kissed his Majesty's foot; and so after a few words had passed, ran up the rope again until he came over the midst of the church-yard, where, having a rope about him, he plaid certain mysteries on the said rope, as tumbling and casting one leg from another; or, as Holinshed expresses it, ‘plaid many prettie toies.’ He then tied himself to the cable by the right leg ‘a little beneath the wrist of the

foot,’ and having so hung for a time recovered himself and came down.”

Three hundred years, it will be seen, have effected very little improvement in rope-dancing and the *corde volante*. These same words would serve to describe the most recent efforts of the kind at Vauxhall or “Astley's.”

When we got on to Blackfriars-bridge,—which, by the way, is scarcely in a condition to be trusted with such a load as it then bore,—we could look at nothing but an enormous chimney, which has sprung up in Thames-street, close by, and serves sadly to mar the view of St. Paul's, which before was so good here. It belongs to a steam flour-mill of great extent, and, considered by itself, seems an excellent piece of work: in its position, however, it is most injurious.\*

We must return to Guildhall, to give Mr. Bunning praise for the improvement which he continues to effect in the adornment of the Hall and the adjacent chambers, for state days. The novelty on the present occasion was a charming collection of sculpture, in the shape of statues and bas-reliefs, appropriately placed. Mr. Carew contributed a statue of Sir Robert Peel, a fine work of art, but, as it seemed to us, not a good likeness. Mr. Calder Marshall sent the “First Whisper of Love” (a repetition of his work under that name, purchased by the Art-Union of London), the “Aurora and Zephyr,” “Sabrina,” and others; and Mr. Weekes, his statue of Lord Wellesley, and some excellent busts, especially one of Allan Cunningham. Painting and sculpture have been heretofore wholly neglected by the Corporation. Surely they could contrive to devote, say 500*l.* a-year, for the encouragement of art and artists: at the same time that they worthily adorned their meeting-rooms, they might thus foster talent, and set up suggesters of good thoughts and prompters to great deeds,—rich heir-looms for their successors.

Here is another opportunity for the present chief magistrate to begin a good work. A consideration for Art is on the rise in the city, notwithstanding the ominous fall of Minerva.

## COPYISM IN ARCHITECTURE.†

I AM always proud to answer your call for a contribution to your miscellany of architectural discussion, but in the present instance you give me too short notice for any attempt more formidable than a general gossip on some subject which comes prominently to hand.

And the first subject which occurs to me is our old theme of Copyism, as lately discussed by Messrs. Pugin, Scott, and Fergusson in the columns of *THE BUILDER*. It was only a little time ago that I first heard of this famous tournament; for, however strange the confession may appear, I had positively not seen my old friend *THE BUILDER* for months, till one afternoon lately I got hold of the file for a year, and plunged over head and ears into it for the rest of the day. I could not but feel surprised at the altered tone of the defenders of Copyism in this case—indeed, the entirely altered ground which is assumed. The question is one of Gothic architecture alone, in the first place. For the once universal “authority” of the classic standards there seems to be no one to advance a word! There was an opening, as I think, for the Orders, every one of them, to edge themselves into the dispute, but not an order was ever mentioned—the fight was altogether for revived Medievalism. Secondly,

\* This chimney rises about 70 feet above the building to which it belongs: the latter is about 90 feet high, making a total of 160 feet. The external diameter of the shaft, where it starts above the top of the building, is, we are told, 12 feet 4 inches; the top diameter, 8 feet: the cap sails over nearly to the extent of the bottom diameter. The internal diameter of the flue is 6 feet, at bottom. The building is seven stories in height, wholly fire-proof, being formed of girders and iron joists, carried on iron columns from top to bottom.

† Read at a Meeting of the Architectural Association, Nov. 1, 1850.

\* We ourselves “bumped” the Lord Chancellor in the course of a salutary effort, and ought to apologise for the same. Such bumpings conduce to the safety, the greatness, and the glory of England.

† The following is a description of the pageant that was introduced.—Two pages. FRANCE (personified by a young woman attired in a white robe, with wings, bearing in her right hand the olive branch, mounted on a white palfrey), having in her train Europe, Asia, Africa, and America, represented by male and female equestrians, clad in national costume, illustrating the four quarters of the globe. Two pages. HORE OF EUROPE (supporting the arms of the nation, emblazoned on a shield). Two Arabs, conducting the Camel of Asia (supporting a device, containing the emblems of the Asiatic nations and arms). Two pages. Two negroes, conducting the elephant of Africa (supporting a device, formed of the palm tree, various birds and



the argument showed an abandonment of even the ordinary ground of the authority of the pure "examples"—the excellence of authenticity: the plea is an entirely new one, and is, moreover, accompanied with so clear and straightforward a statement of principles, premises, and conclusions, that nothing could be more fair or satisfactory. Mr. Pugin evinces a slight acidity, certainly, but otherwise speaks plainly out; and Mr. Fergusson and Mr. Scott (particularly the latter) expound their views with admirable manliness.

Four years and a half ago, when I first began to take an interest in this question, if there was one word more than another in every body's mouth it was *precedent*.—"the authority of the ancients,"—the dogma of the books—Stuart and Revett, Chambers, Palladio, Alberti, Vitruvius,—the test of travel, whether you had set veritable foot on classic land far away, where the ruins are. Some have a good theory, that when the increasing purpose which through the ages runs, comes to the necessity for a new movement, there never fails to be some one at hand to fulfil the mission of its minister: and when THE BUILDER gives me credit for having a hand in the first of the attack, I suppose I may assume it to be so. And, in this view of the case, certainly there was something unusually apt in my connection with the movement. Two years previously I had come up to the great metropolis from a northern city cold, to push my fortune, carrying with me an introduction to just one architect,—but that the one who, in my eyes, stood for the whole world, and whose name on the superscription of my letter made me almost quake with reverence—Thomas Leverton Donaldson—to this day a kind friend. He sat me down at his breakfast-table, and I felt as if on Mount Olympus. So pleasant was he—as he always is—that, in the fulness of my confidence, I expressed a decidedly heretical idea; and with one mention of the ancients I was vanquished utterly, and laid down my arms abashed. After this I had spent a year, by a singular accident, among the Yankees, and I returned with a broad-brimmed hat, a full-skirted coat and a shirt-collar turned down, with my hands in my pockets, and as much beard as I could muster under my chin. I was full of liberty and equality and go-a-head-ism (I think I never shall regret my year among the Americans; for their freedom of thought—little understood with us yet—is a grand thing to see, and a noble thing to learn). It was not wonderful, therefore, that *precedent* should sound now most strangely in my ears, and the authority of the ancients seem a most extravagant conception; and, accordingly, I revolted. I wrote letters so devoid of veneration, that THE BUILDER could not publish all of them, and I therefore put the matter in a book. It was a vociferous and undisciplined book, as any one would suppose; but I am not yet ashamed of it: I read it half through the other day with, at this distance of time, the zest of novelty, and I felt bound to own that I was more brave and spiritual then than now.

This is all, so far, personal; but what I meant to reduce it to is this: much has been accomplished since that day, and in its accomplishment my utmost expectations have been realised in that scheme on which I built my strongest hopes—the architectural association of young minds.

Much, I repeat, has been accomplished since that day. Some may affect to sneer at it. "*Vox et preterea nihil*," says Mr. Pugin; "overweening conceits," chimes in Professor Cockerell, "savouring of aberration, tending to a strait-waistcoat." But the one of these authorities being somewhat reactionary, and the other somewhat erratic,—do this with me. Look into THE BUILDER of the 23rd of February last,—the very previous page to that in which our Royal Academy professor, from whom we hoped better things some time ago, be being, as it happened, in another humour, now styles you and me Babylonian-tower-builders on the way to a strait-waistcoat: look into this, I say, and read the kindly, manly, honest words of the "Old Professional Friend who lives a hundred Miles from London;" the "Man of the Old School," who "looked in last night for half-an-hour's gossip" with our true-hearted BUILDER: how cheering those words are!

Although of the old school, he is one of

those who fully appreciate the intellectual stir of the day, and anticipate great things from it in due time. So far from pooh-poohing young men and their 'wild visions,'—insisting on rigorous adherence to precedent, and discouraging that freedom of thought which is beginning to show itself amongst them, he looks to them hopefully, agreeing with those who think that the destinies of a nation depend upon its boys." Read this over again and observe every word—the enlightenment of both speaker and reporter. "He would like (he continues) to see a little less flippancy and self-conceit in some cases (not a whit less of it, say I; else where would be the liberty of the young fresh intellect, undisciplined, but unsophisticated,—the mountain stream unchecked—the native soul untamed?); but," as he good-naturedly says, "when their knowledge increases, their own deficiencies will become more apparent (true; we learn to know, like Newton, only how little we know), and they will view with greater consideration the shortcomings of others." (Bravissimo to the man of the old school! Mark the words—"The shortcomings of others"—how honest they are! the boys will make allowance for the shortcomings of the men!) "It is not (pursues our old professional friend) because I have been five and forty years in the profession, that I am to expect implicit assent to all my opinions, and blind deference to all my suggestions, on the part of those who are now entering it: fashions have changed, though principles are permanent; views are extended, facilities are greater; the little that the youngsters do know is all in accordance with the present state of knowledge, and it is easier for them to advance on that than for one who has already run a race, and would perhaps have to 'try back' at starting." Such testimony from this good British-hearted man of the old school is worth a wilderness of vapouring about strait-waistcoats. Believe me, the movement which you and I began four years ago would not, at this time of day, be deemed worthy of such vociferous assault if it were really nothing or of no practical effect. It is because "men of the old school" are now beginning to look to the boys "hopefully," and "expect great things from you in due time," that it becomes worth while for a Pugin to throw at you a sneering *vox*, or a Cockerell to recommend a strait-waistcoat for you. Five years ago where was precedent? Many of you can now scarcely appreciate its mighty position. And who speaks of it now? Not even Mr. Donaldson, the one man of all who has the best right to maintain it with honour to the last, as the idol of a lifetime of learning. And who will say that it may not be better for us to have to meet now such a rebuke as Mr. Pugin's and Mr. Cockerell's, rather than to have gone farther and fared worse? Have we not seen revolutions, in running too hastily, overtaken breathless and overwhelmed? And have we not seen virtue, over and over again, in thrusting too rashly the ideal upon the real, exploding in tumult or expiring in dejection? And if our stage be a humble one beside Paris, or Hungary, or Rome; and if our interests at stake be far less mighty than the weal or woe of nations, and our weapons less majestic than cannon and the headman's axe, yet may we look from afar off upon those more magnificent dramas as they pass, and learn a lesson for our own. Our revolutionary course has crept comfortably on through four good years of preliminaries—quiet constitutional agitation—abstract test; and now there is no one really to oppose its progress. There will be reactionaries to sneer at us in fear of our success, and even to call us unpleasant names, and recommend to us unpleasant things, as a sure sign that we are succeeding. When the new light first assails the old, it assumes a sour expression, and conducts itself boisterously against a stronghold so difficult to shake; but when the foundations are sapped, and the citadel is tottering, it is the old light that now uses the bad language, and the new light laughs at it. But take courage: if in overthrowing the old (as it is admitted we have done), we have established no new in its place (wherein the complaint lies), we have at least prepared the way for the new, and, no one can deny, incited the desire to have it; and it will come, as the Man of the Old School says, *in due time*, as we shall see. It is some-

thing, and a great thing, to have attained the abstract ideal fact: to realise it in practice is a task for patience, and perseverance, and opportunity.

The precedent of the classical party being abandoned, and the upholders of the revived mediæval (as the prevailing fashion) being left to defend their somewhat analogous position, let us see how they do it.

If Mr. Pugin's real argument be simply that in Roman Catholic temples adherence to the forms and spirit of Roman Catholic times should be the rule, seeing that (as he lays it down) "as the faith of the church is unchangeable, the form and arrangements of an ancient church are just as appropriate for the nineteenth as for the thirteenth century," and further seeing that (as he says) "the externals of religion have suffered a lamentable debasement during the last three centuries, and by returning to the old and appropriate forms we are only regaining our *natural habit*,"—if this be Mr. Pugin's only position, the question is withdrawn. He argues as a Roman Catholic for Roman Catholics alone, upon a matter of faith, and we are bound to respect the dogmas of others as we would have our own respected. When architecture is adopted as a matter of faith, we cannot fairly demand that the question shall be decided on grounds of taste alone: if we argue, it must be on the field of faith first, and on the other only after we have won the former.

And when Mr. Scott takes the field in support of Mr. Pugin, if he represent that class in the English Church who hold similar views to those above alluded to, he is equally beyond our reach.

But you, I presume, view the question as not of religion, but of taste; and for your consideration Mr. Scott lays down in very fair logic a proposition different from the above and quite within your province. "We had an architecture (says he) which was at once the offspring of our race, our climate, and our religion; but we were enticed from it by an exotic taste unsuited to any of them: this we have for three centuries been vainly endeavouring to render our own,—we have now become quite dissatisfied with it: what, then, can be more reasonable than to begin again where we left off?" And this seemingly fair argument be supported by the auxiliary reasons, that we have no style at all at present of our own,—that experience teaches us we cannot deliberately invent a new style for the occasion,—and that the old style is one of surpassing beauties.

This argument, if admitted, would at once lead us to abandon all we are now, or have of late been, practising, and to commence designing *all* our architecture on the model furnished by the last works immediately before the period of the revival—not only churches, but palaces, monuments, and public and domestic buildings, streets, railway stations, and the building for the exhibition of the works of industry of all nations.

But this argument, if I do not misrepresent it, is, I consider, faulty in all its main premises, but chiefly in one—namely, that we have no style at present of our own. I fancy I can see very clearly that we have a style of our own, and one which cannot fail to triumph ultimately over every attempt to introduce the style of another nation, another climate, or, let me add, *another age*.

Architecture, as I said long ago, is partly based upon the principles of construction, as the material embodiment of the spiritual idea: I may further affirm that in its first elements and primary efforts it is of necessity entirely based on the requirements and manner of building. Now in our present adoption of all sorts of heterogeneous styles we happen to be aided by the possession of all sorts of materials,—ponderous blocks of sandstone, such as guided the Greeks, equally with the small Kentish rag, such as governed the design of the middle ages; with all kinds of roof coverings,—slate, stone, tiles, lead, corrugated iron, and all the rest of it; and what we have not at command naturally, we can produce artificially,—and if not the fact, then the semblance, for we can build with brick and make it anything we like with plaster. Moreover, with our iron, glass, slab-slate, ashlar, and veneering, cement, and painted joiners' work, we can add still very greatly to our means



of production; so that if it were the order to build, whether by the pattern of Aladdin's Palace, Solomon's Temple, or good Mr. Peggotty's boat, we could do it as a matter of business, to any amount indefinitely, at a day's notice. From all which I draw, if no more, at least this conclusion, that our circumstances, on the whole, are not to be compared with those of the period at which Mr. Scott would have us begin again, and, therefore, that his argument even already loses a good deal of its applicability.

But further than this, I would now assert, first, that a natural style of architecture is such as can accomplish the wants of the circumstances in the way of building in the most suitable and economical manner with the full advantage of all the materials and other appliances at command; secondly, that a natural style for us now-a-days must of necessity be much varied for the variety of subjects; thirdly, that, taking many circumstances into account, the present age is one which is eminently calculated for the development of natural style, and the overthrow of whatever is upheld by nothing better than tradition and association.

In walking along the new streets of any town, where houses are built without the expense of any vestige of "the styles of architecture," do you see no style appearing? Are they not all similar? This is one part of the natural style in its elements, at the least, its principles, based on pure construction. The glass palace is another instance. The "conventicles" of the very poor Dissenters, where they cannot afford conventional decoration, are another instance. And between classical Italy and mediæval England I certainly think that the sympathies of our age, as thus evidenced in their elements, cannot be denied to be assuredly more in unison with those of the former than those of the latter: this, generally speaking, of course, and so far as an indication may be had of the tendency of the age.

My advice, if you would have me speak with candour, to all young students, certainly is this: study classical antiquities for their excellence; mediæval antiquities (in proper selection) for their excellence too; and the principles evinced in common English 19th century housebuilding, for the development of their tendency in natural style. To begin where we left off is to my mind absurd, for not only do I deny the one of Mr. Scott's premises to which I have directed attention, but I am equally unable to admit the Gothic style to be the offspring either of our race—although of Englishmen—or our religion in any way at all. I have long viewed Gothic architecture as having really no firmer hold on the present mind than mere fashion—the same fashion which produced St. Paul's from the mind of Wren, and St. Pancras from that of our own Inwood. Many are the beauties of the works of the middle ages, but let beauty be the test, and not mere authenticity, for very many are their deformities likewise. Their beauties are a valuable study, but assuredly not more so than those of the classical times and the pure revival: if the clergy will have Gothic, give them what they wish, for they have a right to choose; but I for one cannot help seeing that the Gothic churches, one and all, and the Houses of Parliament, with all their grandeur, both sink equally into disrepute with the common-sense practical judgment of plain men, beside the comfortable "preaching-house" of Mr. Pugin's wrath, and the comfortable walls and ceiling, windows and doors, of an ordinary dwelling-house. And herein is evinced the tendency of the natural style of our period; and whether to study that fact, or "begin where we left off," I must leave you to determine for yourselves.

ROBERT KERR.

**ACCURACY OF DIVISION.**—A correspondent of the *Morning Chronicle* states that amongst the host of remarkable inventions to be exhibited next year, will be one by an eminent engineer in Lancashire, which shall in a moment detect the yet unknown inaccuracy of our most perfect national scales; which shall show by one sensitive touch how the devoted labour, the painful sight, and the unceasing study of years in obtaining accuracy of division, have been misapplied,—a machine which will quickly, palpably, and satisfactorily show to us a difference of the 70,000th of an inch.

## EXCLUSIVENESS IN ARCHITECTURE.

### ENCLOSURES.

THE advantages of enclosures, and the effect of exclusion upon the public, deserve a deep investigation, both for the sake of architecture, as a fine art, and of public morals, as a branch of education. Nowhere does the subject obtrude itself so forcibly upon the studious traveller (except in southern Italy) so much as in this country, whose places of public worship, public edifices, the mansions of royalty and of wealth, exhibit by their outward and inward architecture an innate feeling of fear of the gaze of the populace, and an exclusion of all but the privileged few, which is seldom met with abroad.

When this remark is made, a very ready answer has been picked up by every foreign traveller, viz., "in this country the vulgar is more brutal and intrusive than anywhere else;" and "the beautiful is neither admired nor honoured by the people here as elsewhere."

The position, I maintain, is not true; and if true, is not an answer that should be given, but an assertion of a melancholy character, deserving the investigation of the moralist. In this country the people are not more intrusive than anywhere else, for the character of the English for keeping themselves to themselves is objected to them by every foreigner; and besides, where servants are allowed to demand money for it, intrusion is no longer thought brutal or vulgar, but is tolerated by the master in a despicably shabby manner, instead of straightforwardly and handsomely.

The beautiful is neither admired nor honoured any where else, so much as in England; but the people is not so extravagant in its gestures and cries of admiration, as in the price it pays for its gratification: and if any fact be decisive, it should be that England, as a whole, is considered superior in beauty to every other country in Europe; a superiority, entirely due to the moral character of the people! can this be co-existent with most intrusive vulgarity? If the position be true, we unhesitatingly announce ourselves as having a population endowed with the highest amount of education,—when average beauty, or even beauty of the highest rank, has failed to please, and extravagance is necessary to cause excitement to the mind,—at one and the same time with a moral character below that of the veriest savage of Africa or Australia. This "fear of the gaze of the populace, and an exclusion of all but the privileged few," does not arise from the extensive brutality of the people: the Englishman does not say with Horace,—

"Odi profanum vulgus et arceo."

But he is a martyr to a spirit of exclusiveness, pardonable, perhaps, as arising, first, from business habits; secondly, from domestic comfort; and these two features, nowhere combined in life so much as in this country, curiously amalgamated with a third, viz. the ambition of aristocracy, or the desire to "get into a better set," natural to all the world. That the whole foundation of this exclusiveness is self-love, or rather selfishness, and so opposed to the spirit of our religion, no one will deny; and it is in the hope of shaming one or two individuals, who may have it in their power to lead others, into reformation, that these observations will conclude with examples of how they manage some things abroad, and at home.

Cathedrals on the continent give a first impression of their essentially catholic, i.e. not exclusive, principle; and where they have been adopted for Protestant worship, as at Magdeburg, Erfurt, Halberstadt, and other places, neither the pompous formidable enclosure of the exterior, nor the drawing-room-comfortable area fenced off in the interior of our St. Paul's, exclude any section of the public from the lay portion of the temple, which at Magdeburg the celebrated Bishop Drueske filled every Sunday with all classes, especially not excluding those unfortunates who are totally shut out from the ranks of their devout and fashionable fellow Christians, if they can afford no seats in elegant pews in some of our churches, and are kept off, as a set of declared brutes, even from the gates of our temples, by formidable palisades.

It will be found difficult to specify, upon the

whole European Continent, a Museum, or public collection, of any sort, surrounded by an enclosure with porters' lodges. They seem to have been erected at the Ecole des Beaux Arts, merely to exhibit at one coup d'œil a series of varied designs; but the National Gallery and Royal Academy is doubly grated: the British Museum is to be boxed up.

The Autocrat of Russia resides in the so-called winter palace, which has one of its 800-feet-fronts looking south to the Great Place adorned by the celebrated monolithic granite column, while the western front commands the Lesser Place, in which the guard mounts in parade on Sundays: the northern front, also 800 feet in length, faces the street and granite quay along the river: now, in the midst of this huge edifice are necessarily several courts (one of which is spacious enough for a whole battalion to mount guard upon one side of the principal staircase), and the gates and entrances to all these inner courts are always open. Many British subjects, who never saw the inside of the marble arch as long as it guarded the open space before the palace of their most gracious Sovereign, have lounged in the inmost courts of the fearful Autocrat's residence. From the river-side, across to the Great Place, there is even, for foot passengers acquainted with it, an open thoroughfare, which is only rarely used because it is a short cut to new localities.

But on New Year's Day, the whole interior of the palace is thrown open to the public at large; refreshments are handed from magnificent sideboards decked with plate; and the Emperor, with all his family, comes into bodily contact with the crowd on this occasion, as well as at the June festivities given at his summer palace of Peterhoff. Of course, in this country, such a scene is impossible, as the loyalty of the people would smother their Queen.

The Schloss, or royal residence at Berlin, is likewise surrounded on three sides by open places,—the Lust-garten, the Schlossplatz, and the Schlossfreiheit; the fourth front being separated only by the narrow stream from the street on the opposite bank of the river. It contains two spacious courts, through which a continuous crowd of foot passengers pours all day, as a short cut from the Markgrafenbrücke to the Hundsbrücke.

The residence of the Emperor of Austria is called Die Burg, and is so situated as to offer, through the gate in the main body of the edifice, almost the only egress for the citizens when they go to enjoy their daily favourite promenade upon the glacis, and in the suburbs, swarming with places of public amusements.

We were going to push the people still further away from Buckingham Palace, and no one on earth can give a sufficient reason for shutting some of the park gates and leaving others open; shutting some parks altogether, and leaving others partially open; while, as at St. James's, the most inconvenient detour is very capriciously left open; while a straight avenue into the park by Marlborough House is closed and carefully guarded! It is forbidden to walk in anything like a straight line from Half Moon-street to Stafford-row (because people would seem to be going to the palace?), yet a path divides the park in the other direction, where it is not so much wanted.

Now, in the three monarchical residences above named, it will be remarked that grandeur of architectural design and arrangement precludes at once in the spectator any painful impression of intrusion of the public on the strictest privacy of the sovereign inmate: whereas the architecture of our palaces seems to exhibit as clearly as possible the idea of a building suited only for an enclosed area; and all the rest of our edifices are of the same feeling.

The celebrated Palazzo Pitti, in Florence, with the gardens accessible to the public, has open doors for all admirers of painting, without reserve. Even the Vatican and Quirinal hardly shut some inner courts to the public, who freely wander through the larger gates. The residences of monarchs at Naples, Munich, Stuttgart; the palaces at Modena, Lucca, Karlsruhe, Darmstadt, &c., present no large gate shut to the public; and at Dresden the diffuse plan of the king's palace admits even of several streets and lanes intersecting the



palace, with thoroughfares for pedestrians in every possible direction.

The mansions, or rather "Houses," of the British aristocracy present a still more sombre appearance of exclusion than any other class of building. Lansdowne, Burlington, Chandos, Apsley, Devonshire, Holland, Portland, &c., are known to the traveller who has entered every regal or princely palace on the continent, chiefly by dead, black, brick walls; within which the student of art can only arrive by a waste of what to him is literally blood and treasure, and whose gates are opened to the foreigner as a most especial favour only, be his standing in the world of art that of a Thorwaldsen or a Canova. Imagination can hardly depict the fate of a card, inscribed "*H. Vernet*," presented at the porter's lodge at Chiswick, with a request to be allowed to see, from the lawn, an architectural gem; yet the sketches by our artists from the interiors of continental palaces are realities.

Behind these blank walls, no proprietor thought of building a grand façade: what contented him in town was good enough in the country; what suited the peer, was sufficient for the prince and the nation; and so behold the degradation of English architecture. How much better it were to bring foreigners to study here, and to detain our native students, it is useless to attempt to point out in few words.

Another effect of the system of inclosures resolves itself into the question, has any man a right to immure art because he is rich enough? And this question, once clearly asked, demands, and will receive, sooner than might be expected, a practical answer; the law of copyright, the reward of the artist, and self-interest, all being involved in the discussion which must ensue; but, till this be settled, it would be desirable, for the sake of the arts, that the gentry of England should bear in mind, that separation from the commons has always been the ruin of the nobility, more so than confusion with the masses; and that the poor only envy the rich, while the miser is by all men detested, ridiculed, and never forgiven.

JOHN W. PAPWORTH.

#### NEGLECT OF SCULPTURE IN ENGLAND.

ONE might suppose that in a nation so rich as Great Britain, where commerce is concentrated, arts should flourish in proportion as manufactures progress; that as wealth increases, and her subjects become more affluent, so, also, they should become more refined, and that the taste for fine-art evidences in all the Schools of Design should keep pace with the prosperity of the people. Such would be the impression of a native-born subject of the colonies, who had but read of picture-galleries, studios, and schools, and who had seen but the pictorial emblems as conveyed by engravings and printed collectanea. History tells of the perfection to which masters had attained in ancient Greece and Rome, and the treasured remains of antiquity discover, from the transcendental quality of those examples that are extant, what must have been the encouragement given to genius by states which were rulers of the then known universe?

He, however, who has travelled over the European limits, sees that such ruminations, however natural, are the reverse of the fact; for the pettiest principality of this quarter of the globe is richer than England, not only in works of art, but in artists, who are known and appreciated as the harbingers of science and taste.

It may be that the pursuits of trade absorb in money-getting all the thoughts and faculties of those who found fortunes and families on the spirit of adventure, in commerce or manufacture; and that the inducement for aspiring minds to follow in the thrifty career is too strong an incentive, to permit the man who is ardent for distinction to follow in the slow walk of painting, sculpture, &c., and of the illustrious men whose works have survived the wreck of thousands of years. It may be that our climate is unpropitious for such pursuits, as it is certainly ill calculated for the endurance of products from the easel or the living marble. The latter circumstance is certainly most inimical to the open display of fine works, and may account

for the paucity at home of objects such as adorn the palaces, museums, and the public places abroad.

It is needless to point out the statues and groups which stand at Naples, Rome, and other cities, or those of the Tuileries, with which we are more conversant. Let those who have seen them look at our squares and places, our parks and gardens! Here we have scope and space enough, and they who know anything of the state of the English school, also know that there is much latent talent, that there are men capable of acquiring distinction, but neglected and chilled as our own region, some of them having sufficiently signalled their merit, but most of them unemployed or pining in indigence.

Science may be more the turn of the time, and more the handmaiden of fortune as conducting to wealth, and as she has been fostered so has she advanced: the country teems with her triumphs, because the country protects and rewards those results which connect remote lands, and bring tidings with the speed of lightning. The fine arts have no such preternatural services to offer: they please the fancy, elevate the mind, but fill not the pocket, and therefore are they slighted or left to a more convenient season.

In all professions there exists a competition that, in a country so overstocked with population, makes pre-eminence extremely difficult of attainment: this may be said of all the faculties—of the law, physic, divinity—but how much greater is the rivalry besetting the early career of a painter or sculptor? Their arts can hardly be called indigenous to the soil of Britain: they first flourished and yet continue to thrive amongst the continental states, and thence the enterprising student comes hitherward to reap the harvest of reward which a wealthy state alone can bestow on the profession. Our travelled gentry visit Rome, Florence, Naples, Paris, &c., frequent their studios, acquire or affect a taste for what it is fashionable to admire, order busts and statues there, and afterwards invite professors to our capital, where they give orders and procure the support of their acquaintance at home.

If an Englishman be ever selected abroad to chisel a head or group, he must at least have a studio at Rome: a work for being foreign is the more prized; for, it is as with Barbaric pearl, the most perfect example of which, if found in a native from the beds near Harwich, would not meet a purchaser at the price of a sham Roman. One great cause of our want of taste in sculpture is the absence of fine models, which are essential to create a taste, or the shutting in from public view such as adorn temples like St. Paul's or the Abbey. As to public places, if any statutory exist, it is of a character ill calculated to impress the mind with the poetry of design: there is a single figure here on the top of a column, sometimes astride, and generally in positions (such as a line of railings) ill suited even to the individual model; but we have no groups, no compositions, in sunny places: our squares are sombre and dull, and in all London there is but one having fountains, and that wholly devoid of ornamental and fantastic art. There is behind the Horse Guards a noble esplanade, and on the area are stationed two long guns, surrounded by spikes, which I heard a provincial call a *shiver de freeze*.

Buckingham Palace has certainly given a high position to sculpture, and the group of charity, although beyond the reach of criticism, nods favourably on art from the parapet: possibly we may anticipate that the plateau in front, lately enlarged, may exhibit something even with the way of the passenger, which, whilst it assimilates with the taste that decks the Tuileries, the Boboli, or the Giardini, may inspire the languishing native genius of the land.

Of late, the turn for testimonials in bronze or marble would seem to favour the advance of sculpture amongst English artists: those about to be dedicated to Peel may certainly puzzle the school to strike out a new attitude for that personation, and to invest them with togas in a thousand different shapes; but how many of these are given to foreigners, how few to native talent! In a Scotch city (nameless) the work is to be given only to an Italian! In many English districts, not to the most meritorious, but to the most favoured.

Versuculation, Poetry, and its patronage have passed away, and there remains no Macænas for marble.

The dearth of works in our Exhibition tells the tale of neglect: if there were encouragement there would be exposed the products of industry. Would it not be wise in the Government of the country to sustain and draw out the capabilities of artists? There are pedestals erected in Trafalgar-square which are naked, and perhaps only awaiting some dead hero to immortalize a living genius. Suppose 10,000*l.* were annually given to revive (or originate) a taste for sculpture, would not the country profit by its humanizing influence? At present there is little more acumen amongst the multitude on the subject than might suffice to discriminate doubtfully between the group of the Princess Charlotte's tomb at Windsor and the statue of George the Fourth at King's-cross, or of Queen Victoria in Pimlico, if some horror-stricken dilettanti, on discovering the barbarism of the two latter examples, had not removed them. There are, at this moment, mouldering in the studios of British artists, splendid models that would do honour to any age or nation, but which are unnoticed or unknown, because sculpture is not fashionable,—and there stand in the hall of a millionaire in the west-end but *plaster casts* of ancient masters, and not a single product from the chisel!!

The year 1851 may infuse a spirit for excellence in this art; but if the subject be indifferent to the Government, and they withhold the legitimate support, this branch of the fine arts must become extinct, and will not easily be resuscitated. QUONDAM.

#### IRON AND GLASS FOR BUILDINGS.

THE OPENING MEETING AT SOCIETY OF ARTS.

At a meeting of the Society of Arts, held on the 13th, Mr. Paxton read a paper on the origin and details of construction of the building for the Exhibition of 1851, much of which has already appeared at different times in our pages. In the course of it he said,—

In 1828, when I first turned my attention to the building and improvement of glass structures, the various forcing-houses at Chatsworth, as at other places, were formed of coarse thick glass and heavy woodwork, which rendered the roofs dark and gloomy, and on this account very ill suited for the purposes they were intended to answer. My first object was to remove this evil; and, in order to accomplish it, I lightened the rafters and sashbars, by bevelling off their sides, and some houses which were afterwards built in this manner proved very satisfactory. I also at this time contrived a light sashbar having a groove for the reception of the glass: this groove completely obviated a disadvantage connected with the old mode of glazing, namely, the putty becoming continually displaced by the sun, frost, and rain, after the sashes had been made for a short time, and the wet by this means finding its way betwixt the glass and the wood, and producing a continual drip in rainy weather. About this period the desire for metallic roofs began to extend in every direction, and, as such structures had a light and graceful appearance, it became a question of importance as to the propriety of using metal sashes and rafters, instead of wooden ones, for horticultural purposes. After carefully observing the effects of those built by various persons, it became apparent to me that the expansion and contraction of metal would always militate against its general adoption, as at no season of the year could the sashes and rafters be made to fit. The extra expense also of erecting metallic roofed houses was a consideration. In 1833, I contemplated building a new range of hothouses, and being desirous of knowing how much they would cost if erected of metal, a plan of the range was prepared and sent to Birmingham, and another to Sheffield, with a desire to be furnished with estimates for that purpose. The estimate from Birmingham was 1,800*l.* and the other, from Sheffield, was 1,850*l.* These appeared to me such enormous sums, that I at once set about calculating how much the range would cost if built of wood under my own inspection; and the result was that I was able to complete the whole range, including masonry (which was omitted in the metal estimates), for less than 500*l.* Besides the extra cost of metallic roofs, we must add the extreme heat of such houses in hot weather and their coldness in times of frost, the liability to breakage of glass from expansion and contraction of the metal, the very limited duration of the smaller portions, as sashbars, from corrosion, by exposure to the alterations of heat, cold, and moisture, inseparable from gardening operations, and which



could only be prevented by making use of the expensive material, copper; and the difficulty, when compared with wood, of repairing any damages, as a wooden roof could at any time be set to rights by the common carpenter. These different items formed in my mind so many objections to its use, and the said disadvantages soon became generally apparent. It was now thought advisable by some persons, that in order to obviate the many disadvantages in the use of metal, the rafters and framework of the sashes ought to be made of wood, and the sashbars of metal. The plan certainly presented more advantages than the other, yet it was quite obvious that materials so incongruous could never give satisfaction; and accordingly, in a few years, as I had anticipated, the rage for these structures gradually subsided, and the use of wood again came resorted to by most persons as the best material for horticultural purposes. In the construction of glass houses requiring much light there always appeared to me one important objection, which no person seemed to have taken up or obviated. It was this:—In plain lean-to, or shed roofs, the morning and evening sun, which is on many accounts of the greatest importance to forcing fruits, presented its direct rays at a low angle, and consequently very oblique to the glass. At these periods most of the rays of light and heat were obstructed by the position of the glass and heavy rafters, so that a considerable portion of time was lost both morning and evening; it consequently became evident that a system by which the glass would be more at right angles to the morning and evening rays of the sun would obviate the difficulty and remove the obstruction to rays of light entering the house at an early and late hour of the day. This led me to the adoption of the ridge and furrow principle for glass roofs, which places the glass in such a position that the rays of light in the mornings and evenings enter the house without obstruction, and present themselves more perpendicularly to the glass at those times when they are the least powerful; whereas, at mid-day, when they are most powerful, they present themselves more obliquely to the glass. He concluded by saying, when I consider the cheapness of glass and cast iron, and the great facility with which they can be worked, I have no doubt but many structures similar to that at Darley will be attached to dwelling-houses, where they may serve as sitting-rooms, conservatories, waiting-rooms, or omnibus-rooms; if I may be allowed the expression. I am now, in fact, engaged in making the design for a gentleman's house to be covered wholly with glass; and when we consider that wherever lead is now used glass may with equal propriety be substituted, I have every hope that it will be used for buildings of various conditions and characters. Structures of this kind are also susceptible of the highest kind of ornamentation in stained glass and general painting. I am not without hope, however, that it will become almost universal in its use, and that the system will be extended for manufacturing purposes, as well as general cemeteries and also horticultural buildings, so that even market gardeners will advantageously apply it in the growing of foreign fruit for the London markets. I then go so far as to indulge in the sanguine hope that agriculture will be ultimately benefited by the application of cast iron and glass. In short, there is no limit to the uses to which it may be applied—no foresight can define the limits where it will end; and we may congratulate ourselves that in the nineteenth century the progress of science and the spirit of manufacturers have placed at our disposal the application of materials which were unknown to the ancients, and thereby enabled us to erect such structures as would have been deemed impossible, even in the early part of the present century.

#### NOTES IN THE PROVINCES.

The clock-turret on the Guildhall of Norwich is now completed, and Mr. Kerr, the architect, has been further commissioned to restore the council-chamber of that city, the open timber roof of which has been hitherto concealed by a flat plaster ceiling. A company has been formed for the establishment of a corn exchange at St. Neo's. A correspondent of the *Sheffield Times* complains that while the vicar of Howden has been praiseworthy engaged in restoring the parish church, a work now nearly completed, the Bishop of Ripon has ordered the destruction of the prebendal residences adjoining, although they were capable of standing for other four hundred years, or as long as they have yet stood since their foundation. A new church has been consecrated at Deal. Not many weeks ago there was a grand fancy bazaar in Worcester, at which many of "Worcestershire's brightest belles" presided at the stalls with such success, as to procure a large sum of money towards the improvements in front of All Saints' Church there. Designs

have since been submitted to the committee, and those by Mr. Truefitt have been accepted.

The contract for North Malvern church has been taken by Mr. Hames, builder. The roof is expected to be put on by Christmas, and the church to be ready for consecration by next July. Mr. and Miss Morris have contributed in all no less than 1,800*l.* towards the building and endowment. A new church is to be erected in St. Luke's district, Bristol, 5,000*l.* have been already subscribed. The first stone of a new edifice to replace the old church of Lucton has been laid by Mrs. Davies, of Craft Castle. Lord Bateman contributes the stone. The new fabric will be raised on the foundations of the old church, after a design by Mr. Cranston, of Hereford, and, like the structure which it replaces, will be built in the Early English style. The old church, though humble in appearance, boasted of very considerable antiquity. It was founded, probably soon after the Conquest, by the Wigmore, of Lucton. The new church of St. Paul's, Ramsbottom, built by subscription, in the Early English style, for 2,500*l.* has been consecrated by the Bishop of Manchester.

Clifton Church, says the *Cumberland Pacquet*, has been re-opened. The seats are all open: the wood (oak) was given by the Earl of Lonsdale, and the workmanship executed by public subscription. The church has been entirely rebuilt, at the expense of Mr. Wm. Brougham, and is completed in the cathedral style. There is a window of stained glass at the east end. Christ Church, Penrith, was consecrated on the 31st ult. The building is in the Perpendicular style, with walls of red sandstone. The roof ridges are covered with ornamental tiles of terra-cotta. The plan comprises a nave with north and south aisles, a chancel also with north and south aisles, a vestry at the north-east end, and a south porch. The nave is divided from its aisles by an arcade of four arches, built of white polished freestone. Two arches of same character divide the chancel from its aisles. The chancel is separated from the nave and surrounding aisles by moulded screens. The sittings, which mostly face towards the east, are provided in open benches. The roof-timbers are open, wrought, and moulded. The font is of stone, a gift of the contractor, Mr. Mawson. The windows of nave and chancel are of two and three lights, the east of chancel five, and filled with stained glass. The two windows of the south aisle of chancel were presented, one by the architects, Messrs. Travis and Mangnall, and the other by Messrs. Scott and Green, contractors for the carpenter-work and plastering. There are no galleries. The church will seat between 600 and 700, mostly free. Heating and ventilating apparatus have been fitted up. The total cost of erection was about 2,500*l.* of this sum 500*l.* were bequeathed by the late Mrs. de Whelpdale. Adjoining the church is a commodious churchyard. A new bridge at Lymington is about to be made in place of the old bridge, swept away some time ago by a flood. The Government engineer suggests either a girder or a suspension bridge. Cost of former, 16,000*l.*; of latter, 13,000*l.*, or 14,000*l.* The Chancellor of Exchequer prefers the former, and offers to make a free grant of half the amount for its erection, and to advance the other half, making it a permanent charge on the county and the Commissioners of Highland Roads and Bridges.

#### CLUB-HOUSE FOR LITERARY AND SCIENTIFIC BODIES.

In your last number a correspondent puts forth some very good ideas respecting the better lodgment of our literary and other societies. Suffer me to add a few further thoughts on the same subject.

It is a very evident fact that a beautiful building goes a long way in the adornment of a society with the character of respectability and importance, and although it may not be entirely just to judge of a body of men by the appearance of the edifice in which they assemble, yet such judgment is, without doubt, frequently made, and it must necessarily tell harshly against not a few of our literary, scientific, and artistic societies. Even the Institute of British Architects is exposed to the consequences of this mode of judgment, for it is most uncomfortably and unarchitecturally lodged, while, from its very nature, and the occupation of its members, it ought, of all other associations, to be the best provided for in this particular, and the best calculated to stand

such a test of respectability as we have noticed.

Weighed in this balance it will, however, be found sadly wanting, and it is a very sad sight to see a body of architects carrying on the business of their society in such unsuitable and unbecoming apartments as are those occupied at No. 16, Grosvenor-street. Any royal institute would, in these rooms, have a beggarly look; but to find a set of gentlemen, known to the world as a royal assembly of house designers and beauty creators, taking up their abode, holding their soirées, and reading their papers in such quarters, does not greatly redound to their honour. Why, such an association of men ought to possess a model building: their meeting-room, instead of being small, ugly, and uncomfortable, should be arranged on the best principles of acoustics, warmed, ventilated, and lighted in the most perfect manner; of sufficient size to accommodate, not only its members, but a reasonable allowance of visitors, and, withal, should be decorated and beautified in such a style, and with so artist-like an effect, as to afford some evidence of the amount of congregated talent. The rest of the apartments should be parlours of the beauty and comfort displayed in the lecture-hall, and, moreover, the exterior of the structure should sympathize with the interior, and be in the possession of such a fulness of artistic and artistic effect as to cause it to proclaim the talents, and at the same time extend the fame, of Britain's architects. It should speak its purpose, and be an ornament to the neighbourhood, the city, the country, yea, even to the world.

Another thought strikes me: A. D. S. suggests the formation of clubs and the erection of club-houses, to be jointly occupied by three or four societies. Such an arrangement would, I imagine, be as feasible and profitable as it is desirable: it would, however, be extremely important to manage so to congregate the several societies as to place under one roof such as are most in harmony, and who, working towards an end somewhat similar, could help one another, and thus accelerate their mutual progression in the paths of information and knowledge. To give an illustration of my meaning—would it not be a desirable thing if we could club together an institute of architects, a society of painters, an association of sculptors (if it were one), and an archæological institute? Such an accumulation would assuredly prove mutually useful. The three first-named are closely bound together by their love for beauty and their desire to present to the world some of its many appearances: they have been denominated sister arts, and right worthily figured forth as three graces. Archæology—not the science of mere collecting, not the art of exhuming the mere corporeal dust of bygone times and past deeds, but the veritable and the useful archæology—it is not a good neighbour for the arts? cannot it often be made subservient to the wants alike of painter, sculptor, and architect, by giving them an insight into ancient manners and customs, and by bringing to the light of modern times, the many beautiful forms and graceful proportions made use of by the artist minds of antiquity? Now, just a word or two as to the building in which these four should reside: it is impossible to give anything beside hints as to its arrangement: to do more would require the pencil, not the pen. I am, I confess, rather disposed to find fault with the opinions of "A. D. S." on this part of the matter, as I cannot but consider that the disposition of plan proposed by him would neither possess grandeur nor would it conduce to comfort and independence.

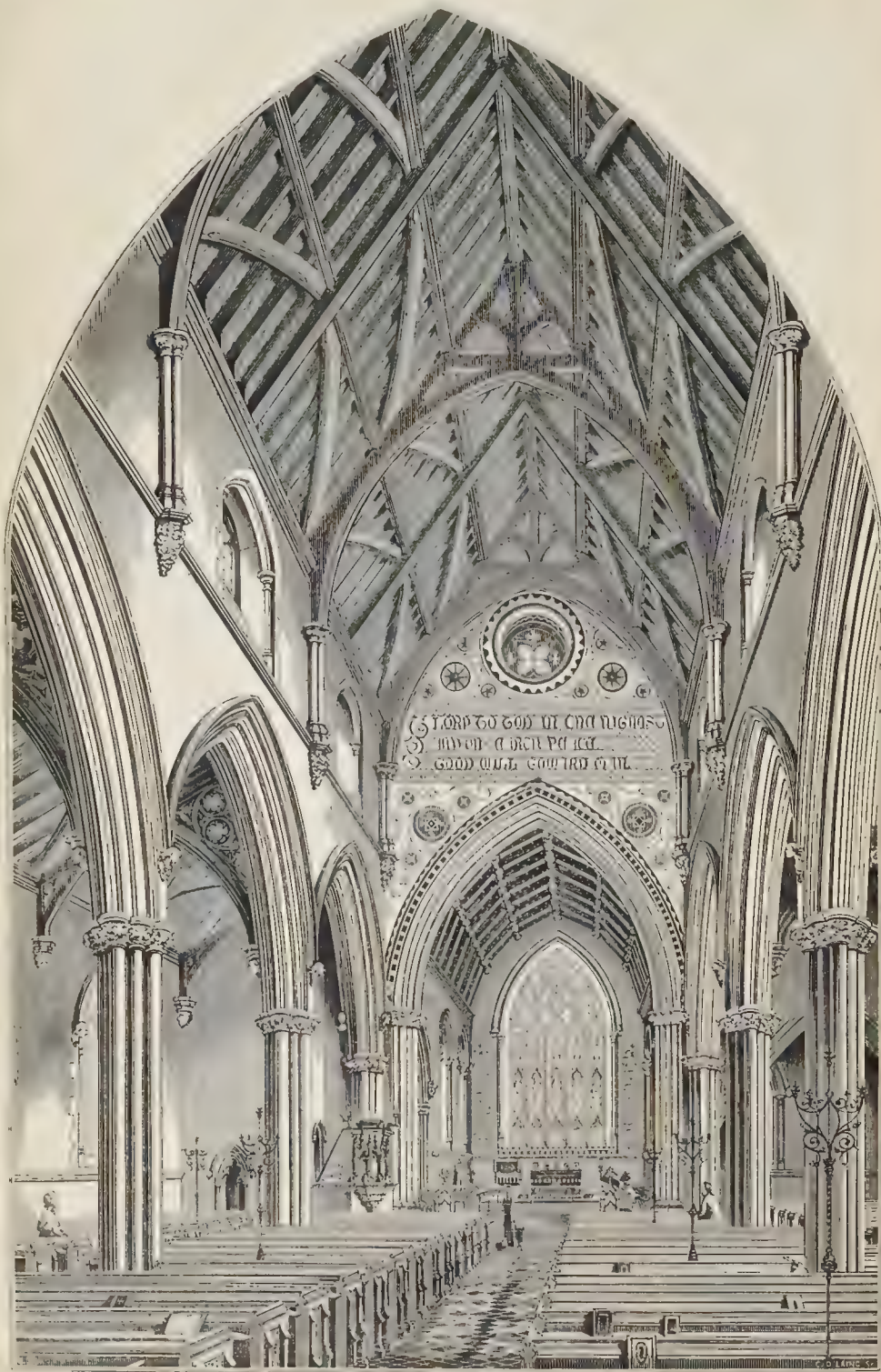
Now, supposing the edifice to be a square or a parallelogram, I would place at each angle a hall surrounded by library, committee-room, and other necessary accompaniments. To these halls there should be separate entrance, so as to allow each society to have any requisite amount of privacy and independence it might wish. In the centre of the structure there could be advantageously planned a hall of sufficient magnitude to permit of general meetings, so that when papers were to be read or business transacted affecting the interest and good of all, they might combine and get instruction, or promote the welfare of the club in a united manner.

To bring these desultory and immature thoughts to a conclusion, what an acquisition would it be to the effective architecture of our age and country, if not only literary societies, but also merchant and professional families and tradesmen, were to carry out the club system! How it would change the panoramic view of this the world's metropolis! Instead of an outline unmercifully mangled by dots and trifling breaks, we should have one grand and imposing: in the place of being surrounded by a host of misshapen and ugly chips of the Building Act, we should be encompassed by structures, not so numerous truly, but infinitely more magnificent in extent, and many of them doubtless arranged in sublimity and picturesqueness: littleness would give way to greatness: meanness be destroyed by nobility and grandeur. Such edifices would be worthy of the nineteenth century, honourable to modern art, and would shed an undying and ever lustrous ray of beauty and glory around the times and the throne of a Victoria. J. N.



## THE INTERIOR OF ST. STEPHEN'S WESTMINSTER.

MR. D. FERREY, ARCHT.-R.





## DESIGNS FOR KNOCKERS.

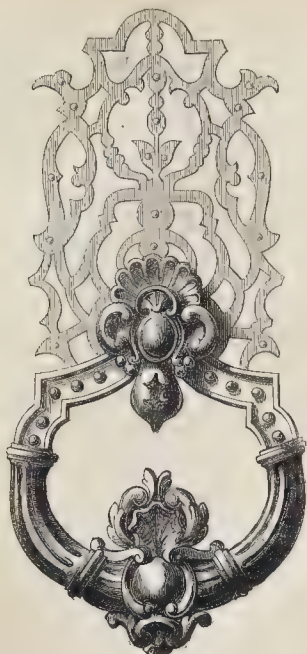


Fig. 3.



Fig. 4.

INTERIOR OF ST. STEPHEN'S,  
WESTMINSTER.

A VIEW of the outside of St. Stephen's, Westminster, built in Rochester-row, at the sole cost of Miss Burdett Coutts, under the superintendence of Mr. Ferrey, appeared some time ago in our pages,\* and more recently we described the internal arrangement of the edifice.† As one of the most important churches built in modern times, we now give a carefully-executed view of the interior of this structure, and for descriptive particulars refer our readers to the previous notices.

## DESIGNS FOR KNOCKERS.

WE continue our series of drawings of old knockers from the streets of Paris, commenced on page 475 *ante*. Fig. 3 is from the Rue Hautefeuille, and Fig. 4 from Rue Jacob. These are both of the Renaissance period.

EXPLOSION OF A CHAMBERED  
VIADUCT.

A SINGULAR accident occurred at Birmingham on Thursday, the 7th inst., when the large viaduct on the London and North-Western line, near the station, actually exploded while a goods train was passing, the explosive force, whatever it was, tearing off both sides of the line, levelling the coping, hurling down for the length of about thirty yards heavy masses of earth and stonework, lifting the engine and tender, a weight of about thirty-five tons, as if they had been playthings, and throwing them off the line. The effects produced are thus described by the local *Journal*:—"Huge blocks of masonry, varying from ten to forty tons, pitched to the distance of many yards, had sunk deep into the ground; mounds of earth scattered far and near; masses of freestone, weighing many hundred weights, tossed about like thistle-down. The timbers of 'the lift' had been crushed in and splintered like reeds. The solid stone and brickwork of the arch, for about 20 feet, was shattered and rent; here

ragged and torn, there cut off as smoothly as if a chisel had been applied, the posts of the telegraph and the broken wires forming a sort of tracery along the side; and above was the engine, half turned over, swathed in mud and gravel, seemingly as if resting on a mere riband. Had it been a light passenger train instead of a heavy goods, there is every probability that it would have been sent reeling over the viaduct."

It was computed, that at least 1,000 tons, including the engine, were raised and dislodged by the shock. As to the cause it is unknown. By some it is believed that an explosion of gas was the cause; but as no flame or light was seen, that idea has been abandoned by many. Others think foul air had accumulated in the cells or chambers and small arches in the viaduct, and that heavy pressure produced the rupture. An explosion of fire-damp, such as exists in coal pits, is also suggested. As so many railway structures have such covered arches, the question is one of anxious interest, and demands a searching investigation. The damage, meantime, is being rapidly repaired by Messrs. Branson and Gwyther.

## GAS.

A COMPANY, it is said, has been formed in Birmingham to supply gas at 4s. per 1,000 feet.—The gas works at Lytham being now completed, the town has been lighted up with gas. A patent purifying composition has been introduced.—Another of those important revelations which we have occasionally noted, where the actual cost of gas made at public establishments, in which no cause for concealment or misstatement can exist, has just been made at Leeds. The following particulars are from the *Leeds Mercury*. The case of the Wakefield House of Correction, we need scarcely remark, was long since made good use of in this journal, and thence found its way throughout the whole country:—"Mr. Edward Shepherd, the governor of the West-Riding House of Correction, states that the quantity of gas annually consumed in the prison and its adjuncts is about 5,000,000 feet, and that for the year ending September 30,

1850, the entire cost, including retorts an every other expense except labour, was 94d per 1,000 feet! The 1,700 lights were supplied for a total cost of 175*l.*, being about 25*l.* less than was paid for the gas consumed during same period in the Leeds Borough Gaol, with scarcely 500 lights to supply. The cost of the gas at Wakefield House of Correction does not include anything for labour, the prisoners being engaged to manufacture it; but even if that had to be paid for, it would not add materially to the amount. Mr. Shepherd only employs four prisoners in summer and five in winter, and he states that if more efficient labourers than the prison generally supplies were engaged, a less number would do all the work required. We believe the facts which Mr. Shepherd has brought before the public, arising out of his experiments in manufacturing gas, have tended much to reduce its price in other places. This is no doubt the case in Wakefield, where, with a much smaller consumption than in Leeds, the gas company are now supplying it at 4s. per thousand feet retail. We understand that Mr. Shepherd has been applied to for information on this subject from Sheffield and many other places, and that he has, in compliance with the request made to him, supplied such particulars as prove most conclusively that gas can be manufactured at a comparatively nominal cost."—At a vestry meeting held in Leeds, the following resolution was lately agreed to:—"That, in the opinion of this meeting, it is highly desirable that the Council should apply to Parliament during the ensuing session for power to establish gas works, and to make and sell gas."—In consequence of recent complaints made in the *Bradford Observer* as to the high price of gas at Bradford, the local gas company have announced a reduction from 5s. to 4s. 6d. with discounts ranging from 2½ to 25½ per cent.—"A spirited meeting," says a contemporary, "has been held in Otley to obtain a reduction in the price of gas, at present 9s. per 1,000 feet. At Yeaton, it is 6s. 8d., and it was resolved to memorialize the directors to bring it down to that sum. Our correspondent thinks that by charging so high a price for their gas, the directors are 'standing in their own light!'"

\* Vol. V. p. 350.

† Page 316, *ante*.



# REOPENING OF THE INSTITUTION OF CIVIL ENGINEERS.

On the 12th inst., the Institution of Civil Engineers commenced the new session, Mr. William Cubitt, president, in the chair.

The paper read was "A comparative View of the recorded Explosions in Coal Mines," by Mr. William West. The reports of Faraday, Lyell, De la Beche, Playfair, and others, were analyzed and tabulated, from which it appeared, that tendencies towards a dangerous condition existed in mines reputed to be comparatively safe, and that these tendencies were so numerous, and varied so suddenly in their nature and extent, as to necessitate attention to every kind of precaution.

The compatibility of general good ventilation with the occasional occurrence of the most fatal explosions was particularly dwelt on. The witnesses on the inquests after the Haswell and the Jarrow accidents agreed that the "ventilation was perfect," "the pit full of air," and "the air quite good, and plenty of it." The fault, then, did not lie in the quantity of air, but rather in the difficulty of directing it so generally throughout all parts of the mine as to sweep away the gas as it was produced. The "splits" for the air were noticed, and the condition of the goaf, the pockets of gas formed in the roof, and the sudden irruptions from the occasional falls in the goaf and old stalls, were dwelt on at great length, and, combined with the injudicious use of unprotected lights, and the liability of accident to the lamps, were shown to have been the probable cause of all the explosions.

The precautions for saving life on the occurrence of accidents, such as abolishing bratticed shafts, and sinking a pair at each mine, at such distances apart as should insure one remaining intact, in case of an explosion injuring the other; the "scaling off" of a portion of the fresh air for the exhausting furnace, and conducting the return air into the upcast shaft at some height above the fire; together with several minor details for insuring the constant working of the exhausting apparatus to draw off the fatal "after-damp, or choke-damp," were strongly insisted on.\*

## ARCHITECTURE IN NOTTINGHAM.

ON the Burton Leys, Nottingham, a new Baptist Chapel has been erected at a cost of 2,900l. It is called Anglo-Norman in style, and if an engraving of it given in the *Nottingham Review* be correct, which shows "longs and shorts" at the angles, an arcade of intersecting pointed arches, the gable terminating with an ornamental barge board, &c., it must be a strange jumble. The letter-press description, however, does not accord with the view, and we will give the architect the benefit of the discrepancy. The plan is a parallelogram, and comprehends a chapel 76 feet by 54 feet exteriorly; 73 feet by 51 feet in the clear between the walls; and 31 feet in height from the floor to the ceiling. There is a vestry at the western end, 30 feet by 25 feet, with three small committee-rooms adjoining, and over these a school-room. The structure is of brick, laid in old English bond with black joints, and stone dressings from the Horsley Castle Quarries, Derbyshire. A flight of nine stone steps forms the approach from Milton-street into a porch projecting from the main building about 10 feet, consisting of a vestibule, 17 feet by 9 feet, and two side-lobbies, 7 feet by 6 feet.

Immediately above the porch and running the whole width of it, an appearance of a diminutive brick colonnade is produced in the surface of the building, by the insertion of black bricks slightly recessed, so as to form a background. At about the same altitude, a pair of projecting brick string courses, two feet apart, encircle the building; and between them runs a zig-zag pattern of black bricks. In the intervening space from thence to the gable, is an interlacing arcade of semi-circular arches. On either side of these, and also of the porch, semi-circular arched windows are inserted. A stone cornice, with chevron moulding, terminates the gable, which displays a wheel window and four semi-columns sup-

\* Another pit explosion occurred on Monday near New-bottle, when twenty-six persons perished, most of them in the attempt to get through a stratum of choke-damp towards the shaft. The immediate origin of the fire and explosion is unknown.

ported on the string-course. The flanks present a plain and blank aspect. The whole is surmounted by a projecting brick cornice, with black bricks for a background, supporting a plain brick parapet, and being made to carry a stone string along the front. Accommodation is afforded for 700 persons on the ground floor by open benches of deal, stained and carved at the elbows: the floor has a gradual descent. The architect is Mr. Booker.

## DRY UNDER-GROUND ROOMS.

A READER OF THE BUILDER in your last number asks to be informed the best manner to "construct the walls" of an under-ground kitchen, so as to have them dry, and the kitchen fit for habitation; and, from what he further states, I am led to suppose the part to be made a kitchen is now a cellar, with the earth close up to the walls. Concluding such to be the case, it will be necessary to go further than the information asked to insure no disappointment. In the first place, form on all sides, where accessible, an external drain or area from the surface to the bottom of the foundation, say 16 or 18 inches wide, paved at the bottom as a channel, in cement, with a fall to one or more ends, where a small drain may be laid to take away any water that may find its way into the area, to drain into the road if such can be made available; and at the same time, when the trenches are open, draining pipes or tiles, such as are used for draining land, may be laid by the side of the drain pipe: this will be of service in draining the land around. The top of the dry area should be arched over in cement, leaving openings to admit air: of course the area will be enlarged in front of window. In the second place, in the proposed kitchen build half-brick work in cement the whole height round the walls, leaving a space of two or three inches, and air-holes made through the external walls near the bottom and at the top, as many as may be sufficient to obtain a good current between the half-brick wall and the drain, inserting iron air-bricks. Plaster the brickwork in the room with Portland cement. The floor should be formed by taking out the earth as deep as practicable, and filling in a layer of concrete six inches thick, made of the best stone lime and clean gravel, to an even level, on which, when set, put a layer of pitch and tar half an inch thick; then lay the floor of York stone or slate on one course of brickwork, to support the stone or slate, in courses, leaving spaces in the brickwork for ventilation: the same in the brickwork of the walls. Build the walls of the room on the concrete and pitch, commencing at one-brick footing. The nature of the soil, and the inclination of the ground, require the adoption of such for the floor.

Should room be an object, it is not improvable the present walls could be taken out, rebuilt with good hard stock bricks in cement, with drains, &c., as before stated. W. C. STRANGE.

Another correspondent says, correctly as we think, that in constructing the new walls of under-ground kitchens, a layer of an inch thick of the "Metallic Lava," or of "Seyssel Asphalt," upon the foundations of the walls, will keep them always dry, as no damp can possibly arise. The ground must be kept off the walls by a dry-area; or the outside of the walls may be rendered with "Lava," or "Asphalte." A good layer of concrete, covered with "Lava," or "Asphalte," to form the flooring of the kitchens will have a good effect.

## SIGHTS AND SCENERY.

*The Princess's Theatre*.—In the very successful new play, "The Templar," produced at *The Princess's Theatre*, Oxford-street, the scenery painted by Messrs. Dayes and Aglio, is scarcely so effective as that they painted for "Hamlet." We must except, however, the interior of the chapel in the fourth act, with its carved reredos and lectern. The piece, which is exceedingly effective, was written by Mr. Selous, brother of Mr. H. Selous, the artist,—best known, perhaps, by his outlines to the "Pilgrim's Progress."

*Royal Lyceum Theatre*.—A piece has been produced at this theatre under the title of "The Romance of the Rose," to introduce, amongst other things, some striking and novel groups, wherein the individuals composing them appear to be magically suspended. Our readers will remember the pretended "suspension by ether," practised by the professional wizards: the arrangement at the Lyceum, of which we are speaking, would seem to be an elaboration of the same device. In "The White Hood," a neatly written and clever historical drama (not played so well, by the way, as is usual at this house), there is an effective scene, the Interior of a Chemist's

Shop, opening on to the market-place of Bruges.

## Books.

*The Great Exhibition of 1851; or the Wealth of the World in its Workshops.* By PHILOPonos. London: E. Churton. 1850.

THE writer of this pamphlet, who is evidently master of his subject, takes an encouraging view of the position of England in most manufacturing arts, and demonstrates the advantages which must result to the country from the approaching contest.

It is admirably written, and deserves very attentive consideration. Not the least so, the author's concluding "few words to the artisans and operatives," inculcating foresight and prudence, and warning them against the rock on which so many are miserably wrecked,—demoralising, debasing, destructive DRINK.

*New Elements of Geometry.* By SEBA SMITH. Bentley, New Burlington-street.

QUITE recently, says this author,—

"I have observed, in some of the most valuable of the English scientific magazines, articles from able professors and distinguished mathematicians, gravely discussing the question of the relative value of three times nothing and twice nothing— $0 \times 3$  and  $0 \times 2$ ."

\* \* \* When learned professors find themselves driven to such conclusions by their received principles of a science, it would seem to be high time for them to go back to first principles, and see whether there be not something wrong in the very foundations of that science. But thus it must ever be while men attempt to reason about nothing instead of something."

Now, in order that we may have something to reason about in geometry, Mr. Seba Smith not only questions but denies the fact that lines have no breadth and surfaces no thickness. Geometry, he maintains, has for its object the measurement of extension, and lines without breadth and surfaces without thickness are imaginary things, of which this perfect and exact science can take no cognizance. "How vain, therefore, are all those speculations where these airy nothings are attempted to be forced upon geometry and mingled with its pure demonstrations!" But, to be brief, the grounds on which the present author bases all his new demonstrations are—

"That a mathematical line is made up of a succession of single and equal units; and therefore a mathematical line has always a breadth of one; also that a mathematical surface is made up of a succession of single lines, and therefore a mathematical surface has always a thickness of one."

The reader, doubtless, in pursuing the argument, *ad hominem*, will conclude that as a surface with a thickness of one is made up of a succession of single lines with each a breadth of one, and as a line with a breadth of one is made up of a succession of single and equal units, these units of extension are the geometrical points of which lines and surfaces are made up. But no: while "the unit we have been using is the representative of a magnitude, and a magnitude of a definite value and form" (namely, the square, or rather the perfect cube), on the contrary, "the nature of a point in geometry is rightly given in the books: it has position, but not magnitude." The new unit of extension, therefore, must be carefully distinguished, we presume, from the mere geometrical point, which is "simply an index of place or position of lines, surfaces, and solids."

Here, accordingly, is a dilemma for the reasoner who, arguing on the principle that a surface has no thickness, and a line no breadth, maintains, for instance, that of two solids in geometrical contact, the common surface between them is no part of either, and that if A be removed from B the common surface between them still remains as it was, the surface of B:—

"What becomes of poor A in this predicament? \* \* \* To prevent the possibility of any imaginary advantage being possessed by B in this respect, let the two solids be separated, by removing both equally, the one to the right and the other to the left. Which of the two solids in that case shall retain the surface that was inherent in both, and common to both while in contact? Perhaps it may then be said that the surface is divided between them, each taking its part. If so, and it be still contended that their common surface, when in con-



tact, had no thickness, it would seem to follow that the surface of each, when separated, must be half the thickness of nothing!"

The author, of course, denies that the two solids, when in contact, have but one surface common to both, and, on the contrary, affirms that each has its own surface, entirely distinct and separate from the other; and not only so, but each occupying a place and position entirely different from the other.

It was while considering a solution, by Mr. J. A. Parker, New York, of the quadrature of the circle, in the truth of which solution he coincides, that the author, as he intimates, began to see the breadth of a line and the thickness of a surface. As to this solution itself—

"Mr. Parker has, with a bold conception and singular originality, applied it to some of the astronomical circles, and obtained remarkable and startling results, indicating that in the motions and periods of the heavenly bodies there are perfect mathematical relations much more wonderful and extensive than have yet been understood."

Mr. Parker's work is not yet published; but this we may say, that if any one think it improbable that remarkable and startling results remain to be explicated in the sphere of modern astronomy, he is very much mistaken. It is now admitted by Sir John Herschell and other eminent astronomers that Newton's grand law is incapable of explaining several highly important phenomena; and, indeed, it is obvious, on a little consideration, free of mere slavish and unreasoning deference to so great an authority, that although the simple law of gravitation most beautifully accounts for the more elliptical orbits of the solar satellites, it utterly fails to explain one of the most glaring peculiarities of the orbits of the planets in general, namely, their obvious tendency to geometrical circularity. We have our own ideas on this curious subject, but this is not the place to enter on them; we shall only here remark, without committing ourselves either to Mr. Parker's quadrature of the circle, or to the certainly ingenious and original line of reasoning which Mr. Smith has cut out for himself, in a way that is at least likely to carry common-sense minds along with him,—that if any thing startling relative to astronomical circles have been recently discovered, it is to be hoped it will shed some striking light on the no less startling defect in established doctrine just now hinted at.

That the book under notice is not intended merely for advanced geometricians, but is calculated even to attract the attention of those hitherto quite untainted in the science, may be inferred from the following passage, with which we must conclude:—

"Geometry should always precede arithmetic, or rather go hand in hand with it, in a system of education. As soon as a child has learned to count his ten fingers, I would begin to teach him geometry; for as it is the most simple and perfect of all sciences, so it is the most readily comprehended if properly taught. Through geometry he should learn all his arithmetic. Then would he find the dark and puzzling labyrinth of numbers to lighten up at every step of his progress. Then would the toilsome and blind path of arithmetic become a bright and pleasant road, and her mystic and vague expressions open to him full of clear and beautiful meaning. Then would he see and comprehend what is meant by those perplexing, enigmatical things, the square root and the cube root. Then would the boy, 'with shining morning face,' no longer be seen 'creeping like snail unwillingly to school,' but tripping with a light heart, and singing for joy."

### Miscellaneous.

**BAKEWELL'S COPYING TELEGRAPH.**—We some time since gave an account of a very ingenious invention, by means of which an individual writing at one extremity of the country, can transmit, through a single telegraphic wire, a perfect fac-simile of what he has written, so that it shall appear in course of a few minutes, though it were a whole page or more, at the other extremity of the line, and of course at however great a distance. We are glad to perceive that this beau-ideal of the telegraphic pen is still held to be a practicable invention. We had feared that it had turned out to be more perfect in theory than attainable in practice. But on Wednesday last Mr. Bakewell

exhibited it at the Russell Institution, Great Coram-street, with considerable success. The principle, as many of our readers may remember, consists mainly in the winding of an iron point round a cylinder at each extremity of the line of telegraph, the cylinder in the one case being covered with a sheet of tinfoil written on with a non-conducting ink, while in the other it is covered with a sheet of paper chymically prepared, so that the iron points in electrical action (as both cylinders turn simultaneously, regulated in synchronous time by electro-magnetism) trace their apparent course round the cylinders spirally; the nonconducting intervals, as they pass over the ink in the one case, being marked and denoted in the other, by blank or white intervals in a blue spiral, so that an exact copy of the writing appears in white characters on a blue ground, and distinctly legible. The paper can also be prepared so as only afterwards to shew the writing, and thus to insure secrecy between correspondents.

**FINE ARTS IN AMERICA.**—When despotism or anarchy, or any of the rapid or insidious elements of destruction begin to sap the foundations of a nation's prosperity, it will quickly be seen in the languor and decline of the fine arts, in painting, sculpture, architecture, and engraving. America is a young and rising republic, rising in strength, population, wealth, and the mechanical arts. Should she not—*is she not*—also rising, and rapidly, in her encouragement of the fine arts? Thirty years ago (but a day in a nation's life) there was not a collection of pictures in the United States worthy of being called a "gallery." Now we can count forty in the States of New York, Pennsylvania, and Ohio, and in each an "Art-Union," in the most flourishing condition. The tendency of the fine arts is from the old to the new world. Wealth gathers around it, by a national attraction, the finest specimens of the easel, the burin, and the chisel, and emigrating wealth and taste is constantly sending to our shores gems of art which meet a full appreciation from our travel-loving and quick idea-catching countrymen. The love of pictures is a true and a natural one. The red man rudely paints his battles on his robes, or carves them on the trunk of a tree. The western pioneer, for want of better, decks the walls of his log-cabin with handbill headings, newspaper wood-cuts, or circus wild beast exhibitions. If good pictures or good engravings cannot be obtained, miserable daubs, or immoral scrawls, will supply this demand. A good picture, either painted or engraved, is a moral lesson—a silent, but a powerful one.—*Buffalo Advertiser.*

**HOUSE DECORATION, VIENNA.**—From Vienna, says the *Expositor*, accounts have reached us of a magnificent and costly contribution, which a furniture manufacturer of that town is sending for the '51 Exhibition. It will consist of four rooms of a palace, each appropriately furnished and decorated. We are not yet at liberty to give the name of the manufacturer, or any detailed account of the furniture. The material is a peculiar Indian wood, rather lighter in colour than rosewood, and it is sculptured in the most artistic manner after the choicest designs of eminent artists. The bedstead alone, which is already completed, costs no less a sum than 12,000 gulden, about 1,200*l.*, and the cost of the other articles is in proportion. The manufacturer will be in London in a week or so to arrange with the commissioners for the space he will require, which will, of course, be considerable, as his contribution will comprehend all the requirements for the four principal rooms of a palace in a style of the utmost magnificence. The gentleman is one of the members of the Vienna committee.

**STEEL WITHOUT PIG-IRON.**—An invention has been patented by Mr. Heath for the manufacture of steel from iron produced directly from the ore without being brought into the state of cast-iron. Ore, as usually reduced to metal, is mixed with a small portion of chloride or oxide of manganese, and some coal or fir tar, or other cheap carbonaceous matter, and heated to a welding heat: it is then compressed into a bloom, re-heated and shingled, hammered, or rolled into bars in the ordinary way; and the bar-iron thus produced is converted into steel by any of the usual processes.

**SAW-MILL DRIVEN BY ARTESIAN WELLS.**—At Millwood (says an American paper) Dr. Withers has a saw-mill which is driven by water supplied from six artesian wells, situated on the premises, at distances from the mill varying from some 50 to 200 yards, ranging in depth from 300 to nearly 600 feet, and affording nearly 1,000 gallons per minute. The water flows from all the wells to a common reservoir, and is conveyed thence to the mill by an aqueduct under ground, and is conveyed into a box or reservoir, whence it falls on a reaction-wheel 40 feet below, and thus puts the mill in motion. After acting on this wheel, the water is conveyed to the river by means of a tunnel, cut through a limestone rock 240 feet in length, and, at the highest point, upwards of 50 feet in depth. The tunnel is 5 feet 8 inches deep, by 4 wide. As the water is nowhere visible under the mill, and empties into the river at a point not seen from the mill, some 50 odd feet below the top of the bluff, the mill, when in motion, presents to the observer the appearance of self-acting machinery.

**RAILWAY JOTTINGS.**—Since our recent visit to Furness a great facility of access to its architectural and other attractions has been afforded by the opening of the Whitehaven and Furness Junction Railway throughout to the Furness line, near Broughton, in Furness, which took place on Tuesday in last week, when the last portion of it from Bootle to the junction was formally opened. The length of line is in all thirty-four miles, and there are stations at St. Bees, Netherton, Braystones, Sellafeld, Seascale, Drigg, Ravenglass, Eskmeals, and Sylcroft. The engineer was Mr. Dees, and Messrs. Jopling and Fell were the contractors, to whom much praise has been given.—The railway communication between Birkenhead and Manchester has been completed by the opening of the Chester and Warrington branch of the Birkenhead, Lancashire, and Cheshire Junction line on Thursday in last week.—Messrs. Locke and Errington, engineers, have examined the Deeside railway route, and report that the line may now be carried out for considerably less than 300,000*l.*, the original estimate of 1846.—We hear that a passenger carriage of very large dimensions, built entirely of iron, and capable of containing from sixty to seventy persons, has been constructed under the direction of Mr. McConnell, the superintendent of the locomotive department of the southern division of the London and North Western Railway. The carriage, according to the *Railway Record*, has been run experimentally on the line with the most satisfactory results. One great advantage of such a carriage, or train, if we may so call it, will be, that it will afford every facility to the movement of the guards throughout the train, as long insisted on in this journal, and at length taken up and strongly recommended to the railway companies by the Railway Commissioners.

**EXPERIMENTS ON IRISH PEAT.**—From 36,500 tons of peat, at 2s. per ton, the following produce, it is said, has been realised:—

365 tons of sulphate of ammonia, at 12 <i>l.</i> per ton	24,380
253 tons of acetate of lime, at 14 <i>l.</i> per ton	3,570
10,000 gallons of naphtha, at 5 <i>s.</i> per gallon	5,750
109,500 pounds of paraffine, at 1 <i>s.</i> per gallon	5,475
73,000 gallons volatile oil, at 1 <i>s.</i> per gallon	3,650
36,000 gallons of fixed oil, at 1 <i>s.</i> per gallon	1,800

The profit, after deducting expenses of the sulphuric acid used in the manufacture, the wages, labour, cost of sending to market, &c., is stated to be 11,908*l.* or more than 100 per cent. on the outlay.

**GLASS SHADES.**—The largest ever produced was lately blown at Birmingham by an English workman. It is 62 inches by 26½ inches in diameter, and contains nearly 40 lbs. of metal. Until lately, a Frenchman was considered the most skilful workman in the employment of Messrs. Chance, in whose manufactory the shade alluded to has been blown. This man earns no less than 9*l.* a week, according to a correspondent of the *Daily News*, who gives the dimensions of this monster "shade." A secret in blowing great glass bubbles was lately described in *THE BUILDER*. It consists simply in moistening the mouth with a little water before blowing. The water is converted, in the interior of the drop, into steam, which vastly aids the breath in extending the dimensions of the "bell."



**THE LIGHT AND HEALTH TAX.**—"Truly the light is sweet, and a pleasant thing it is for the eyes to behold the sun."—Eccl. 11th chap., 7th verse. If blindness be an affliction, it surely is an affliction to live in houses where nearly every chink and crevice which admit the light and air into our dwellings are "tased." Where darkness predominates dirt accumulates, and as our Government taxes the admission of light and air into the dark dwellings of the poor, especially in our crowded cities, it is surely very, very studious in encouraging filth, fever, miasm, and malaria amongst them. By the deprivation of these natural requisites for our existence, the Board of Health, with all its sanitary regulations, stands shackled in its useful progress; for wherever light and air are wanting in our dwellings, there cholera and contagion with all their attendant destroyers are prone to stalk. O ye advisers of our Royal Queen, ye who have thoughtfully given us *cheap bread*, deny us not the full enjoyment of our health and existence. "God said let there be light, and there was light," but ye now tax His bounty to the destruction of His creatures.—J. F. C.

**MACHINE FOR LIFTING SACKS.**—A north country miller was lately endeavouring to enlighten some of his fellow dust-bags on the subject of knowledge in general, when one of them quizzically said to him, "Come awa, Jock: knowledge is power, ye ken: gie's a lift wi' this sack." It was Jock, no doubt, who lately gave his scoffing boon companion a practical proof that knowledge is power, even in so small a way,—by inventing a simple machine to save labour of a most severe description. To lift a sack of perhaps 2 cwts. up on a man's back requires two other men: this aid is now superseded by the "sack-lifter," as it is called—a very unpretending piece of mechanism, consisting of a rectangular frame of wood, within which the sack is filled, with the bottom resting on a board, which is elevated to the requisite height by means of a cord at each corner, passing over pulleys and wound upon a drum, this drum being turned by a common crank handle. Thus one man can fill the sack, elevate it to the level of his back, and carry it away.

**ARCHITECTS' CHARGES: LIABILITY.**—In a recent action brought by Mr. Sprague, architect, at Nisi Prius, to recover 112*l.*, alleged to be due by a Roman Catholic priest in the Commercial-road district for different plans and drawings ordered by him to be made for a church and schools to be erected in that district, the defendant urged that the plaintiff had volunteered to prepare the plans without remuneration, upon the expectation of being employed to build the church, and that it was absurd to suppose that a man like the defendant, who was dependent for his support on the contributions of the poorest of the poor, would give orders to render himself liable for such an amount. Mr. Justice Patteson having summed up, the jury gave a verdict for the plaintiff to the full amount.

**NAPHTHA LAMPS.**—These appear to be most dangerous articles. Of late we scarcely ever look over the news of a week without seeing some account of an accident from their use. In last week's papers we perceive no less than four such cases. In one at Seacombe, while a teacher was filling a naphtha lamp, the naphtha ran over, and coming in contact with a candle held by a boy, took fire, and the whole exploded, driving out a partition wall 12 feet long and 9 feet high, and setting fire to the house. The teacher and several of his scholars were severely burnt, and one of the latter has since died from the injuries sustained. In another case nearly the same thing happened at Manchester so far as regarded the replenishment, the explosion from contact with a light held by a boy while a man poured out the naphtha, and the death of the boy. In Oldham and Bolton two cases nearly identical in every respect occurred, in which two stall women were severely burnt. We observe the occasional occurrence of the very same sort of casualties detailed in the American newspapers. It is easy to say that carelessness or ignorance of the proper mode of dealing with so dangerous an agent is the usual cause of such accidents: were naphtha even only a little less imminently dangerous, time might be allowed the public to acquire an adequate knowledge of the way to manage it; but as it

is, they are purchasing that knowledge at rather too great an expense, and we think it a duty to warn all and sundry against tampering with so dangerous an agent.

**ST. JAMES'S PARK AND ST. JAMES'S PARISH.**—At a very numerous meeting of the vestry of St. James's, Westminster, Mr. Nelson moved,—That a petition be presented to Parliament to require the Commissioners of Woods and Forests to deposit plans and give notices of any proposed alterations in the property belonging to the Crown and the public, as is required by individuals or public companies under the standing orders of the Houses of Parliament." In proposing his resolution, Mr. Nelson reviewed some recent doings of the Woods and Forests, particularly referring to the Mall, the marble arch, the sculpture by Westmacott and Bailey, and some of the London improvements; and quoted the second report of the committee of the Commons on the last of these subjects to show that the control he suggested was necessary. His proposal, he remarked, was no novelty, for it was a plan adopted in Rome in the fifteenth and sixteenth centuries. Government, he considered, should appoint some one to receive communications from local bodies as to desirable improvements, these to form the grounds of Bills in Parliament to give powers to purchase, &c. The resolution was passed unanimously, and the churchwardens, with Messrs. Nelson, Miley, and Wilks, having been appointed a committee to draw up the petition, the vestry, after some other business, separated.

**METROPOLITAN SEWAGE MANURE COMPANY.**—The tenth half-yearly meeting of this company was held at Willis's Rooms on 5th inst., Mr. H. P. Fuller in the chair. The report stated that the works for bringing the contents of the Ranelagh and intermediate sewers to the company's station at Stanley-bridge were in progress, and that the improvement in the general aspect of the company's affairs, arising out of this measure would have been very decisive and important, if the directors had been enabled at once to carry the pipes to a distant district, in which case they were confident that their early anticipations of profit would have been realised. The report concluded with an appeal to the shareholders for the means of transferring, in concert with the Commissioners of Sewers, the contents of the sewers of their district from the waters of the Thames, to the improvement of the lands as far as Hounslow and Isleworth. The engineer's report stated that since last meeting the works had been in proper order, and that they had been working for 38 days, or 881 hours. A proprietor asked what was the prospect they had of success in this undertaking? The chairman said they were confident of success, because if their capital was confined to their present amount they would be able to supply the whole of the Fulham district, which, if the gardeners took it, would pay the expenses, and leave a dividend. When they saw the result of thus manuring the ground, and the excellent crops produced by it—even three crops of celery from the same ground in the same year—then, he said, men would not refuse using that which was so beneficial to themselves. The chairman had now the means of living until all prejudices had been done away with.

**DANGER TO ST. STEPHEN'S, WALBROOK.**—St. Stephen's, Walbrook, is now in a state of repair, but there seems no intention of removing the unsightly shop from before it in Mansion-house-place. If a fire were to happen in that house, the church would be certainly (much injured, or) destroyed. Limehouse Church was destroyed by fire from a much less cause than that would be. There is a large open window in the tower just over the roof, which would form such an indraught for flakes of burning matter that it would be next to an impossibility to preserve it. Pray say a word of caution in time. The rent of such a shop cannot be an object in a pecuniary view.

**SUBURBAN ART-SCHOOLS.**—In reply to an inquirer, we are able to state that any endeavour which is now being made to establish a school for drawing and modelling in *Lambeth* is irrespective of the committee who established the North London School. But the committee, we believe, contemplate forming a school there shortly.

**METROPOLITAN SEWERS' COMMISSION.**—On 12th inst., at an adjourned general meeting, after several appeals were considered and an application by the wardens of Dulwich College for time to pay 3*l.* 12*s.* of rate agreed to, Mr. Peto made a statement with reference to the Bermondsey district, in which he deprecated the severity of some comments made on the sewerage of Jacobs' Island, and said that he wished to correct an erroneous impression which had got abroad, that the difficulties that had arisen by certain legal proceedings on account of the filling up of the tidal ditches in connection with that island had been the effect of the operations of the present commission; nevertheless, he did not mean to blame the previous commission, who had circumstances of great difficulty to cope with in the cholera season. The court was then made special for the purpose of authorizing the construction of a variety of extensive works (already specified in a recent number of *THE BUILDER*), and which were accordingly ordered to be carried out. A report from Mr. Forster was then read, recommending the execution of extensive works for the drainage of Lee, Lewisham, and its vicinity, and for the diversion of the house-drainage from the Ravensbourne, on the payment of a contribution of 5,000*l.* (out of 14,630*l.*) from the Kent Water Works Company.\* The court thereupon resumed, and ordered various other new works, when there ceased to be a quorum to dispose of the cases of appellants present from the outset: a quorum, however, was at length got, and the cases disposed of. Mr. Austin's plan for public conveniences, mentioned by us last week, was examined, and reported on favourably by Mr. Forster, whose opinion was ordered to be forwarded to the inventor.

**THE PRESIDENT OF THE ROYAL ACADEMY.**—Her Majesty has conferred the honour of knighthood upon Mr. Charles Lock Eastlake.

**THE BUILDERS' BENEVOLENT INSTITUTION.**—Our readers will perceive in our advertising columns that an election of two females and three males on the funds of the Builders' Benevolent Institution will take place on the 23rd inst. We trust it may lead some who have kept aloof to join the society. There is every reason why this should be one of the largest charitable institutions in the kingdom if builders and *their merchants* had the inclination. There are four pensioners on the funds, elected last year. The society was established in 1847, and has now 2,300*l.* stock.

**ARCHITECTS' BENEVOLENT SOCIETY.**—It has been arranged to call a meeting of the profession and subscribers for the purpose of adopting the rules for the society and electing the committee and officers, at the Freemasons' Tavern, Great Queen-street, Lincoln's-inn-fields, on Wednesday, the 27th inst.

**ENLARGEMENT OF BRITISH MUSEUM.**—Why not roof over the entire area of the centre court with glass supported from the interior by two rows of iron columns. Little light would be lost to the surrounding windows, and a hall would thus be obtained of sufficient extent not only for the sculptures at present scattered about the court-yard and passages, but for the accumulations of another century.—W. J.

**VITREOUS BRICK, TILE, AND TUBE MANUFACTURE.**—A patent has been granted to Mr. W. G. Elliot, of Blisworth, Northamptonshire, for the melting or running of clay, sand, limestone, cinders, chalk, earth, shell, and other materials, in a state of fusion, into moulds or casts of the shapes of bricks and tiles, culverts, pipes, &c.

**POMPEII.**—The Neapolitan Government have granted a sum of 20,000 ducats for continuing the excavations of Pompeii.

**LAMORNA STONE QUARRIES.**—Mr. Freeman is working a stone at these quarries, intended for the Great Exhibition in London: it is 20 feet in length, and weighs upwards of 20 tons.

\* A committee of the ratepayers of Camberwell have issued a report on the proposed system of drainage for the Surrey and Kent districts, in which they condemn that system in no measured terms.



TO THE ENGLISH PUBLIC.—I am the

**TO THE ENGLISH PUBLIC.**—I am the owner of one-fourth part of the Invention for CUTTING, DRESSING, and SHAPING STONE, for which Letters Patent have been recently issued by the British Government to William Edward Newton, and the public are CAUTIONED against purchasing said invention without first acquiring my title thereto.

**CHARLES T SHELTON,** Counselor, &c. at Law,  
No. 12, Wall-street, New York, North America.  
New York, October 25, 1850.

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The attention of the public is particularly called to the terms  
this Company for life insurances, and to the distinction which is  
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Age next birth-day.	A MALE.	A FEMALE.	Age next birth-day.	A MALE.	A FEMALE.
	Whole Life Premiums			Whole Life Premiums	

10	1 7 6	1 5 4	46	3 11 6	3 3 2
13	1 9 3	1 7 0	50	4 1 9	3 13 3
16	1 11 3	1 8 10	53	4 11 6	4 2 6
20	1 14 4	1 11 8	59	5 4 0	4 14 0
23	1 17 0	1 13 8	60	5 6 0	5 12 6
28	2 2 2	1 15 0	69	7 4	

29	2 0	1 10 2	61	7 4 0	6 9 8
30	2 6 0	1 10 0	66	8 4 0	7 10 8
33	2 8 6	2 2 10	70	10 0 4	9 7 6
36	2 11 0	2 6 4	73	11 16 2	11 2 6
40	2 19 2	2 12 0	78		14 1 9
43	3 5 3	2 17 2	80		15 13 10

\* **EXAMPLE.**—A Gentleman whose age does not exceed 30, may insure 1,000*l*. payable on his decease, for an annual payment of 2*l*. 10*s*.; and a Lady of the same age can secure the same sum for an annual payment of 1*l*. 17*s*. 6*d*.

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EXAMPLES OF THE EXTINCTION OF PREMIUMS  
BY THE SURRENDER OF BONUSES.

Date of Policy.	Sum Insured	Original Premium.	Bonuses added subsequently, to be further increased annually.
	£	£. s. d.	£. s. d.

1806	2,300	79 10 10	extinguished.	1,222 2 0
1811	1,600	33 19 2	ditto	211 17 8
1818	1,000	34 16 10	ditto	114 18 10

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EXAMPLES OF BONUSES ADDED TO OTHER POLICIES.

Policy No.	Date.	Sum Insured.	Bonuses added.	Total with additions to be further increased.
		£	£ s d	£ s d

		L	K	G.	L	K	G.
521	1897	910	982	13 1	1,882	13 1	
1174	1810	1,390	1,160	5 6	2,360	5 6	
3393	1820	5,000	3,568	17 8	8,568	17 8	

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United Kingdom; at the City Branch; and at the head Office, No. 59, Regent-street.









# The Builder.

No. CCCCVII.

SATURDAY, NOVEMBER 23, 1850.

**I** HOSE among our readers who remember the remarks we have made, from time to time, on the antagonistic position of the Referees and the Registrar, at the Office of Metropolitan Buildings, the constantly-occurring appeals for decision of their differences to the Office of Works, the consequent delay, and contradictory awards, will not be surprised to learn that an inquiry has been instituted by Lord Seymour, as Chief Commissioner of Works, to discover, if possible, where the fault lies. Two gentlemen (whether the right men or not we will not now inquire) have been appointed to hear and examine the statements of the parties concerned, and to decide, if possible, whether the evil is to be attributed to provisions in the Act, or to the officers personally. If the former, an endeavour will be made, in the new Bill, to produce a different result: if the latter, there will probably be changes in the office. The inquiry has been conducted in secrecy, and we shall not render that abortive by communicating any of the facts that have transpired, or speculate on the probable issue. Suffice it, that we set at rest by this statement some unfounded rumours, in connection with the office, that have been forwarded to us. As respects the clauses in the Bill brought forward in 1849 (and now pending), which would transform the Buildings' office into a law court, make the registrar sole arbitrator, and the referees his clerks, the objection on the part of the builders is, as might have been expected, very decided. Our own opinion on the point we expressed at length on the first appearance of the Bill.

An argument against the exemption of the works of railway companies from the supervision of the official referees, has been afforded by the bridge belonging to the South-Eastern Railway, over Joiner-street, Tooley-street. One of the patent girders, it will be remembered, failed in October last,\* and the safety of the remaining girders being questioned, especially under the circumstances in which, through the alteration of the station, they will now be placed, Mr. Brunel and Sir John Rennie were appointed to inquire and report on the subject. The statement by Mr. Barlow, the company's engineer, that there were 120 tons weight on the girder when it broke, was questioned in our journal, and a doubt expressed whether the engineer could wisely rest the remaining girders with half that weight. Last week the remaining girders were tested by placing carefully, upon a certain defined space of the upper surface of the bridge, iron chairs of known weight. When 148 tons were upon the area the two girders broke. One, 42 feet 2 inches bearing, it is calculated, had upon it 67 tons, 3 cwt., the other, 46 feet bearing, 60 tons, 12 cwt. In this experiment, it must be remembered, the load was applied uniformly all over the girder, and the road-construction, which is of considerable weight, was first removed.

The outside girder, still remaining, has a bearing of 57 feet 3 inches, and is only of the

same strength and construction. We have not yet seen Messrs. Brunel and Rennie's report but do not hesitate to assume that they will assert the necessity of strengthening the bridge.

The occasion for caution, which we felt it to be our duty to urge upon the devisers and contractors for the iron building in Hyde-park, is now being repeated by some of our contemporaries. We have received several letters, too, on the subject from professional coadjutors. One of the least urgent amongst them says:—

"On examining the construction of the building for the Exhibition of 1851, from the drawings exhibited at the Society of Arts, the idea suggests itself that *additional strength* is required in the construction of the ironwork for the centre avenue: when you bear in mind its great span (75 feet), and the weight it would have to support, independently of other circumstances it would also have to contend against, some precaution appears necessary to be taken. I would therefore throw out the suggestion, whether it might not be advisable to introduce circular ribs between the pillars and the girders, with ornamental spandrels, which would not only strengthen the present construction, but also improve the general appearance of the whole. With reference to the gallery floors, perhaps, the boards there should be laid with apertures between them, to enable the dust to pass through into an enclosed space underneath, in order to prevent the dust and dirt from being swept or falling on the different articles underneath. How is the snow to be got off the roof, and the glass cleared?"

There are other parts of the construction, however, which need serious attention, as must be felt by any who will observe the great heights of the columns, tier over tier, in the centre, the manner in which the girders are secured to the columns, the size and weight of the wooden ribs prepared to form the ends of the transept, the nature of the foundation, and the strains to which the building will be subjected. We make these remarks in no cavilling spirit, but from a feeling of duty; not to excite any alarm, but to prevent a disaster.\* Some additional precautions have been taken since our first comments, but others are still necessary.

Against our will we are forced, further, to object to the mode of painting proposed by Mr. Owen Jones, to whom it seems this portion of the undertaking has been confided. Anything more vulgar than the specimen put up we have not seen for some time.

We must except, however, from this comparison, the *decoration* of the pendentives of the Whittington Club's great room, in the Strand, the once famous "Crown and Anchor" meeting room. This excellent and thriving club,† have spent about 400l. in the decoration of the room, under the direction of Mr. Freeman, architect, and they opened it to the members last week. The tone of the whole is somewhat sickly: contrasts have been feared. What marble the pilasters are veined to represent it is hard to divine. We should not have made any remark, however, but for the unsightly caricatures, in the shape of boys with the legs of gouty men (representing Science, Music, &c.), painted on the pendentives of the cupola. In these times when every tavern and tea-garden begins to exhibit an approach to artistic decoration, such monstrosities must not be permitted in

\* According to informants, a girder failed last week under a comparatively trifling weight, and led to a fatal accident. To an occurrence of this sort, however, no importance need be attached, excepting as to the personal result.

† It has now about 1,600 members. In the new list of lectures we observe Mr. Donaldson is announced for two "On the Manners and Customs of the Ancient and Medieval Times: as illustrated in their Sacred and Civil Edifices."

an educational institution like the Whittington Club. That respectable decorators like Messrs. Trollope, who were employed, could have left them as they are surprises us. If they have any regard for their own reputation, they will forthwith remove them and put in something like art.

Before concluding our gossip, we would say a few words to the correspondents who have addressed us in consequence of a brief remark on *Malvern Abbey Church, Worcester-shire*, which appeared in a recent number of *THE BUILDER*. They all admit the main point of objection, namely, that the works have been carried on without professional superintendence, and one of them will not disguise the fact, he says, that one of the main arches exposed to view by lowering the organ gallery has been unnecessarily blocked up again by a painted lion and unicorn. A building such as this belongs to posterity, and should be treated with the utmost care. Our end will be answered, if the remark should lead the zealous churchwardens to take proper advice as to the future works which ought shortly to be commenced. The beautiful tower is in a miserable condition, and seems to want immediate attention.

Malvern is a cross church, as many of our readers will remember, with the tower at the *cross*. The nave-piers, and arches, are Norman, but the exterior of the church is Perpendicular, and is ascribed to Sir Reginald Bray, who designed Henry the Seventh's Chapel at Westminster. The chancel is a fine composition; the clerestory windows throughout are very large; the north porch, which is at the extreme west end, a very interesting specimen. There was a series of memorial windows in the church, but in those times when mistaken zeal

"Rent  
Altar and screen and ornament,  
And peasant hands the tombs o'erthrew,"

these were greatly destroyed: much of the old glass, however, yet remains, and some modern glass has been added. Some of the figures in the old windows were engraved by Strutt for his "Manners and Customs," and by John Carter, in his "Ancient Sculpture and Painting." There is an illustrated account of the church in Neale's "Views of Collegiate Churches." The faldstool engraved in "The Glossary" is from the stained glass here: many of the paving-tiles remaining are exceedingly curious. Again we say to the churchwardens: Let nothing be done to this interesting old structure but under proper advice: better be idle than do harm.

## THE GENEALOGY OF THE FINE ARTS.

My endeavour in the following remarks is to sketch a theory of art generally, which I attempt under the conviction that some of its branches are not fully appreciated even by those who take an interest in its manifestations. By a large proportion of educated persons, the arts of painting and sculpture are classed among mere amusements, or hobbies, and considered only as vehicles for the display of talent, affording at the most a refined species of pleasure to the observer. Of architecture they have no idea as one of the means of intellectual enjoyment and improvement to man. They see nothing in it but brick or stone, and wood, formed and arranged to serve certain purposes of utility, presenting at the farthest a clue to the condition, as to wealth or station, of the occupant of the structure. Very few, I apprehend, think of art as of an influence to move the heart, or suppose it has functions to perform, and ends to fulfil, in any way connected with the moral sense and intellectual progress of mankind.

This has, I suspect, been a result of the excessive commercial development of our coun-



try; and it is perhaps natural, until the general mind become fully awake to the importance of art-culture, that it should lean most to those mechanical, commercial, and other sciences, which have mainly contributed to our national importance.

But true greatness in a people must arise from the cultivation of all the faculties of the mind. It takes both "the beautiful and the useful to form a man;" the mind, like the body, must grow in all directions;—the moral, intellectual, and imaginative faculties being alike developed. We must cultivate the entire man, and bring ourselves in contact with the universe in every possible point; and not only endeavour to expand our own natures, but introduce the principle into every system of education; so that all may enjoy, not a partial, but, as far as practicable, a complete and universal culture.

It appears probable that a much greater uniformity in education existed among the classic ancients, when we consider how equal was their encouragement of the different branches of intellectual pursuit. In Greece we perceive that not only literature, philosophy, and science, but the fine arts, were carried to the highest point of perfection. This, the multitude of exquisite monuments of art still existing fully attest. The brilliant period from Homer to Alexander was characterized by this uniform mental pursuit. Learning and literary composition—every species of philosophy—eloquence—the art of war—are known to have arrived at the highest degree of perfection, and yet were not in advance of sculpture and architecture; illustrated at this time by the chisel of Phidias. In fine, the whole circle of arts and sciences may be said to have disputed for pre-eminence with each other. We may apply the same remarks to the Romans in the reigns of Augustus and Adrian. At the same time, the art they cultivated was not *fine* art only. The aqueducts, bridges, and cloacas of the latter people have been the models of the grandest works of a similar nature in modern Europe.

On the relative importance of art,—its rank among the various branches of human pursuit. I will content myself by quoting a celebrated living writer:—"There are two avenues from the little passions and drear calamities of earth, both lead towards Heaven and away from Hell,—art and science; but art is more godlike than science; science discovers,—art creates. The astronomer who catalogues the stars cannot call one atom to the universe. The poet can add a universe from the atom. The chemist may heal with his drugs the infirmities of the human form: the painter or the sculptor fixes into everlasting youth, forms divine, which no disease can ravage, and no years impair."

Schiller, in his philosophical and æsthetic letters, insists upon the necessity of æsthetic as a preparation and foundation for moral culture, and considers that until we are so developed we cannot be morally free, and, by consequence, not responsible, as the will has no sphere in which to operate. And Sir Joshua Reynolds, even in his day, considered an establishment for such culture as a subordinate school of morality. He contended that it was necessary to the happiness of mankind and security of society, that the mind should be elevated to the idea of general beauty, as a mean of giving it its proper superiority over the common scenes and temptations of life.

The Platonists looked upon the cultivation of the understanding, by the study of science, as no less necessary than the practice of virtue, to qualify a human soul for the enjoyment of a future state; and Plato himself has called mathematical demonstrations the cathartics of the soul, as being the most proper means to free it from error, and give it a relish of truth. May not, I would ask, a cultivation of the sense of beauty be deemed a more approximate means to this end? Real works of art should be the most intimate companions of the soul: the man to whom they are mute, to whom they reveal nothing, will learn little of a moral or spiritual nature from books, and must have but faint notions of his connection with external nature,—of his relation to the universe.

I know there are persons so absorbed in the ordinary business of life, that this would sound

in their ears like an unknown tongue. There are not wanting men, slaves of utility, who would crush every emotion of the heart as weakness, and quench every spark of imagination. They admire the powers and faculties that, in the present state of society, most rapidly lead to wealth, and despise those which have been the brightest glory of our race, and the chief spur of civilization. Such persons will, however, in common with others, look back with admiration and pride at the great achievements of men in the past history of the world, and particularly of their own countrymen; forgetting that from these very faculties they affect to despise, have chiefly resulted all that dazzles in the past, or in the present possesses any real dignity or importance. We feel the limits of the human understanding, and, the more profound our researches in philosophy, the more palpably we experience it. We see the boundary-line beyond which our minds cannot penetrate; but we are, at the same time, conscious of a void beyond that limit, which superior intelligence might penetrate. It is by the creative faculties that this is to be filled up; hence their advantage over reason. The imagination, swifter than the wings of the morning, transports us through the universe. The reason is limited, but the imagination is boundless. By it we approach the Infinite, and are linked to the Divinity. It is to other than reason that the heroic deeds of those great spirits who have created epochs in chronology are to be ascribed. The great wonders of the ancient world were not the result of reason. The greatness of man is most apparent when he works from the feelings—his power over his fellows more complete when he holds them by the chords of the heart and imagination.

The Arts, which will be treated upon in the following paper, are those of Architecture, Painting, Sculpture, Poetry, Music; the latter two will be occasionally referred to, but my attention will be chiefly given to the three former. To form the genealogical tree of art, my course will be to trace its essence or principle—the beautiful—from its source; which will divide the subject into three distinct branches:—there are three realms of the beautiful, viz. Nature; the Human Mind, or Imagination; and Art itself.

On the first head little need be said. The most interesting of the three kingdoms of Nature is the animal: the highest species of beauty is to be found in that department. The human form and face divine,—the index of the character and passions,—is the chief subject involved in the style called historic, the highest walk of art. The beauty exhibited by the other creatures of God is various, but harmonious. Among the savage tribes of the forest, in the depths of the sea, in the regions of the air, beauty reigns and rules in every mood:—all is animated grace. What beauty is renewed to us every morning! The eastern sky is a flood of glory, and the morning dew sprinkles the earth with diamonds. The glory is repeated in the evening, but is only a prelude—a mere earthly pageant—to the more glorious exhibition of the starry firmament—

"When the heavens  
Are thronged with constellations, and the sea  
Strewed with their images."

This is the sublimest picture, the highest class of art, in the gallery of inanimate nature. Philosophy has no power equal to these luminaries of night, these monitors of the sky, to elevate the heart above the cares and anxieties of life.

Beauty is to be found in nature in all seasons; it is not the nymph of the summer, but the goddess of the year. From green-robed Spring, whose voice,

"More sweet than softest touch of Doric reed,  
Or Lydian flute, can soothe the maddening winds,"

to Autumn, clad in the hues of the rainbow: nor beneath Winter's snowy mantle and icy zone is it altogether concealed.

But the theme is endless: it is vain to enter into details: in the most insignificant objects of nature we find the traces of the beautiful. What delightful curves in leaves, shells, grasses! What exquisite harmony of colour also in some of the most ordinary plants and flowers! In the plumage of the feathered tribe! seeming a link between earthly and ethereal

creatures; beauties greater and more numerous than appear to the common observer; beauties that only the artist can rightly appreciate; for the eye requires training and practice to see fully the beauties of creation. How wonderful, again, is the effect of motion upon all! What elegance in the movements of some animals, particularly of the human form. A charm ever new and inexhaustible. Beauty is but half developed when at rest: Æneas, in Virgil, knew Venus to be a goddess at first sight, but only discovered her to be the goddess of beauty when she moved:—

"And by her graceful walk, the queen of love is known."

Motion generally is expressive or suggestive of beauty:—

"Thou canst not wave thy staff in the air,  
Or dip thy paddle in the lake,  
But it forms the bow of beauty there,  
And the ripples in rhymes the oar forsake."

After a survey of the glories of creation, the thought that first suggests itself to a reflective mind is the general indifference of mankind to it. The beautiful in nature, like the beautiful in art, has too few, and among these too many lukewarm worshippers. For too many, nature may be said to waste its loveliness on the desert air. Beauty is above, around, and beneath us, and we do not heed it. We tread on beauty and know it not. Many are born, live, and pass away, with scarce a glance on the beautiful world in which they live. There are many fossils, plants, and other works of nature, that we scarcely notice, or at best with indifference, which, if they were produced by art, would be preserved as treasures, and admired without bounds. We think little of nature's beauties, perhaps, from their being so commonly about us. How often do we find men who would stand in apparent rapture before a painted landscape, that would pass the original with indifference; and be unmoved by the sublimest effect of sunshine and shadow when presented by nature! Showing, however, that it was a conventional, rather than a true and genuine, feeling for the beautiful, by which they were excited. How often do we find the physiologist in ecstasies with the scientific beauty of a subject, while utterly heedless of the charms that address him through the medium of form! The botanist also, whilst busy defining and classifying, too frequently loses some part of his enjoyment, by the non-contemplation of the æsthetic, along with the structural, grace; forgetting the marriage of beauty and science; forgetting that nature speaks through these creatures to the eye and the heart, as well as to the reason and intellect, by their transcendent beauty of form and colour. At the same time it must be granted that the pleasure of the artist would be enhanced by the scientific knowledge of fitness,—adaptation of means to end,—and the union of the various parts to the accomplishment of the contemplated result, which natural objects exhibit. Like poetry and music, the æsthetic and scientific beauties of objects may be said to stimulate each other, raise the thoughts, and enhance the pleasure of the spectator.

In truly great minds, however, in all ages of the world, there has existed a deep-rooted love and veneration of nature. Milton considered it "an injury and sulleness against nature, not to go out and see her riches, and partake of her rejoicings with heaven and earth." "Here," exclaims an old English poet, in reference to woods,—"*Here is the true Parnassus, Castalia, and the Muses.*" And so charmed were the classic poets with the natural shade of trees, that they gave to temples the name of groves. In the vistas and shades of trees, poets have composed verses which animated their countrymen to heroic and glorious actions. Here orators have delivered their discourses, and the profoundest philosophers have been so enamoured of nature's beauties as to be content to pass their lives in her bosom, in repose and contemplation. Among the luminaries of the middle ages, how prized must have been flowers, since we find them named after whatever was most valued. Nature is the great storehouse of art, and in the infancy of the latter, and prior to the refined pleasures which art affords, being extensively diffused among any country or people,



the innate love of the beautiful would, of course, be more concentrated upon nature. Accordingly, in the early period of mankind, as also in the infancy of different states, large use was made of beautiful natural objects in seasons of festivity, as emblems of happiness and rejoicing. "Let us crown ourselves," says the author of the Book of Wisdom, "with rosebuds and flowers before they wither." Early nations in all their ceremonies, whether of the banquet, the altar, or the tomb, made large use of flowers as decorations. Among the classical ancients, the wreath of the victor, and other rewards of merit, were arboraceous, and this led to their extensive employment, as symbols, in architectural decorations.

I come now to the second branch of my subject, viz.—the beautiful in the Human Mind or Imagination.

"Every star in Heaven," says Emerson, "is disconcerted and insatiable; gravitation and chemistry cannot content them; ever they woo and court the eye of every beholder; every man that comes into the world they seek to fascinate and possess,—to pass into his mind, for they desire to republish themselves in a more delicate world than that they occupy. It is not enough that they are Jove, Mars, Orion, and the North Star, in the gravitating firmament; they would have such poets as Newton, Herschell, and Laplace, that they may re-exist in the finer world of rational souls, and fill that realm with their fame. These beautiful basilisks set their brute, glorious eyes, on the eye of every child, and, if they can, cause their natures to pass through his wondering eyes into him, and so all things are mixed." And so through the wondering eyes of every man, all external objects seek to pass. The aspect of nature operates insensibly upon the soul of every rational creature in proportion to his natural susceptibility, and the images reflected there, whilst modified by the original disposition and current of his being, become invigorated by his intellectual power, and enriched by the stream of education. Impressions and influences operate also from other sources, until his mind becomes

"A mansion for all lovely forms,  
His memory, a dwelling place  
For all sweet sounds and harmonies."

A feeling, more or less, of the beautiful in nature, is common to all, but only the artist, who, from superior intellectual power, and greater strength of imagination, has a fresher, deeper insight into the inexhaustible life around, possesses the capacity to form his ideal, and give it expression. All have the æsthetic feeling, which means sensitiveness, or susceptibility of the impress or influence of the beautiful and poetic, but few have the creative power which belongs to the artist, viz., the faculty for reproducing and embodying the feeling in some form of art,—a picture, a statue, a building, or a poem. This is what is properly termed genius, than which there is perhaps nothing more difficult to define. It has been said to consist of a refined love of nature, "a love of the flower and perfection of things, and a desire to draw a new picture, or copy of the same." Sir Joshua Reynolds must be considered incorrect when he speaks of the imagination as being a lower faculty than reason; for the creative faculty is certainly beyond those which merely perceive and compare. It is the chief part of genius, the genius, to which all creation administers. To its sleepless eyes lie open all the human heart, and all the stores of nature. A freer center of the highways and thoroughfares of life, the man of genius, whether poet, or painter, or architect, is a watcher of events, at the votary of circumstance: "alive to every influence of nature, awake to the varied and complicated truths of existence, he lives with more than life about him; and the difference between the mind of the artist or poet and ordinary minds is this,—to the latter, the model, theme, subject, or whatever else the groundwork may be called, on which the material expressions of genius are founded, appears or sounds in simple unconnectedness, unsuggested, and unsuggesting, and exciting no further sensations than are contained within its known limits; but to the true artist it is the type of a past revelation, or the symbol of something intuitively foreseen. It is a point in an infinite series, coming down from

the past, and leading off to the future in interminable perspective. And thus he to whom is given "the vision and the faculty divine," sees or hears in his subject that which, till he has materially realised it, is to other men invisible,—inaudible. The truest, subtlest alchemy is his who, from seeming dross, works the true metal of undying thought.

Genius, however, is not always a producer: there are those who are recipients of the tide of inspiration from nature, and yet yield no fruit to the storehouse of Art. They form and nurture their ideal but for their own solace and delight. Dissatisfied with human power of execution, and free, perchance, from "that last infirmity of noble minds," they build only in the region of dream-land, and shrink from all material realization of their works, lest they should betray the grandeur of their subject. They are what a French writer calls "the virgins of the mind," who "die without leaving any trace of themselves behind them upon the earth."

The beauty existing in the mind is higher in degree than that in either of the other realms of the beautiful.—It may be considered as superior to nature, as no individual, however beautiful was its archetype; and it is superior to that in Art, as no power of execution can do justice to the conceptions of genius. It is superior both to its antetype and to the image through which it is expressed: the eye never saw it in nature, nor, as I shall by and by endeavour to show, has the hand embodied it in Art. It is neither copied from a beautiful individual, nor compounded of the faultless features of a species, "create of every creature's best." No beauty was ever so formed, either in the mind or in Art. The mind operated upon and inspired by the general beauty of nature has become pregnant with a new beauty, greater than all. By what steps the process was conducted we can no more explain than we can the production of some vivid dream of the night from dull waking thoughts and incidents. The ideal of landscape Art is also in advance of nature; every plant, flower, and herb has its Venus or Apollo of ideal beauty: nature's general beauty has inspired and suggested a beauty beyond the individual, and ideas may be formed, and have been formed, of various inanimate objects, which perhaps no individual ever has reached, or ever will.

One object, perhaps, kindled it at first, but by constant study and observation,—by catching nature in her highest moments—in her happiest moods—and fixing on marble or canvas the most fleeting beauties, it was corrected and improved. An artist once told me, that after he has placed the living model in the finest position he could think of for exhibiting the beauty and grace of the figure, by an accidental movement, he (the model) has himself immediately gone into one infinitely finer, and which he (the artist) could never have imagined nor dreamt of. This he has no sooner fixed on his canvas, than a slight and partial movement of some limb has developed a new beauty. Grace is beauty in motion, and the motion of animals, as well as of man, is constantly revealing new beauties to the eye of the delighted artist.

Thus is the ideal generated, notwithstanding the fact that natural beauty of form is dependent on fixed and determinate scientific principles, which are alike applicable to all the arts of design, and which it is the duty of the artist to investigate and study. It is a fact that, by the application of certain rules of proportion, beauty of form is produced in each art, and that the beauty of the face and figure of the Apollo is governed by precisely the same principles that reign in the temples of the Acropolis. This is a truth, however, that does not, what some writers have supposed, set aside the theory of the ideal. It is but a dead beauty that can be produced by rule. Expression is its soul and life, and this cannot be given by rule. We may point out the more prominent effect of the various passions upon the human countenance; but to communicate to marble the light, the glow, the shade of thought, the reflection of the soul on the human face, is the work of genius. The province not of rule, but of intuitive feeling. It is as true in art as it is in religion, that the letter killeth, the spirit giveth life.\* S. H.

\* To be continued

## CHOICE OF STYLES.

WHEN an architect has to design a building now, he is beset by a difficulty which was never known in old times, but is now hardly less perplexing than it was ten years ago. The difficulty, I mean, is in deciding what style his building shall be of: and the varieties presented to his mind are neither few nor simple, including all the minor changes and even the mistakes and abortions of all times, none of which seem to be entirely condemned. With regard to churches, happily, the difficulty is almost overcome; but not at all with regard to other buildings, as the walls of any architectural exhibition bear plain witness.

The question never can be settled until the principles of each kind of architecture be well known and distinguished,—not those accidental peculiarities which every one observes, but some fundamental principles which give the character to the architecture. When these are once perceived, then we shall be able to decide which is the fit kind for us Englishmen of the nineteenth century: and the architect will have nothing to do then but to study the requirements of the building he is to design, and adapt the form of arrangement and expression to them. For it seems to me a great mistake to suppose that in the same country one style is most suitable for one sort of building, and another for another; for that which is not suitable to every sort of architectural building does not deserve the name of architecture; though I readily grant that an unlearned observer may hardly perceive that the same style is used in two buildings of a very opposite use, such as a church and a prison for instance.

I will, therefore, offer a few remarks which may tend to throw some light on the character of the different styles. Let us confine our thoughts to European architecture.

The various styles used in Europe since the beginning of civilization to this time may be divided rather roughly into three.

1. The true classical architecture which prevailed among the Greeks and Romans down to the fall of the Roman empire.
2. Mediæval architecture, which rose slowly out of its ruins, and declined and fell about the sixteenth century.
3. The revived classical, which is still prevalent.

Let us consider each of these styles:—

1st. As to the *general form* of their building. 2ndly. As to their *mode of expression*; for these two heads seem to me to comprehend the philosophy, so to speak, of architecture.

I would compare the general form of Grecian buildings to a planted grove of trees. They were even and regular, and presented the appearance of a wall, surrounded by rows of pillars, like the outermost stems of the trees while the low flat roof (sometimes there was none) was like the even top of the grove.

In the warm, sunny climate of Greece, men lived for the most part out of doors, and sat, for the whole day together, under the porticoes: it was, therefore, the outside on which most beauty was lavished, and the bright light and absence of mist and fog showed distinctly each little ornament of the capitals. The inside was to be as dark as possible, that it might seem and be more cool, and opposite to the external brightness and heat. There were, therefore, no windows, the only light being admitted by the door or the apertures in the roof. The roof was low, with just sufficient slope to let off the rain; there being no snow to rest heavily on it.

The cities of Greece had often abrupt table rocks, issuing isolatedly out of the level ground: these were always chosen for the temples and public buildings, and so the natural rock formed, as it were, the lower part of the building, to which the others were but upper stories or roofs. Thus, their form harmonized with the character of the ground.

With regard to the mode of expression in classical buildings, we can speak more definitely. Their effect was produced by actual sunlight. Beautiful forms were placed round their buildings. Pillars of the most perfect shape and proportion, crowned with capitals of delicately-carved acanthus leaves, supported an entablature in which line followed line and ornament ornament in undeviating regularity: above all was a pediment filled with the most beautiful sculpture of some historical or mythological subject which was well known to the



spectators, and sure to call up heroic or patriotic feelings in their minds. But it was the clear sky and warm bright sunshine which gave to everything its life, the pillars, the horizontal lines of the mouldings, which were now broad lines of shade, and the godlike forms in the pediment. Where the atmosphere is thick and hazy, the light dull, the sunshine uncertain and comparatively wanting in brightness, and moreover far from vertical, the life of such a building is proportionally gone.

Any one may convince himself of the truth of this even in London, by noticing the much-admired portico of St. Martin's-in-the-Fields church. On a bright day, when the sunshine rests on these pillars, they seem to stand out alive and very beautiful, but how different is the effect on a dull cloudy day: then their beauty is entirely lost. How much greater, then, is the difference in the lovely climate of Greece or Italy, where not only is the light on the pillars far brighter, but also the shade behind far deeper from the vertical position of the sun. The Roman buildings were, many of them, indeed, merely for strength and use, and therefore these remarks cannot so well apply to them; but all those which were meant to be beautiful, temples and other buildings, depended on just the same means of expression as the Greek buildings,—external ornament, beautiful forms of pillars or pilasters, and capitals and entablatures placed outside. Thus the principle of beauty was the same in each.

But the introduction of the arch in Roman buildings caused a very important change. The arch, in all ornamental buildings, was merely used between the pillars, these being still the main objects; but in building for use only, the pillar was quite a secondary part, and sometimes quite disappeared. This led the way for the Romanesque style, which, although in the shape of the smaller parts it was classical, yet in the general form of the whole, and what is more important, in the expression, was different, and therefore I should call it the commencement of Mediæval Architecture.

2. The principles of mediæval architecture have perhaps been sufficiently acknowledged, but yet I will venture to state them as they seem to me: first, in form; then in mode of expression.

The general form of mediæval buildings certainly is aspiring—pointing upwards. The doctrine of the symbolism of churches has been so continually and disagreeably obtruded of late, as to have become a weary matter: it has been carried to such a height, that a Gothic church was considered a mere fable or allegory, of which the doctrines and practices of a certain religious school were the moral or application. Whereas, in regard to all the main parts and features of the building, they assumed their form from the necessity of the case, and the symbolical meaning was affixed to them afterwards, and only in the minor and accessory parts did this meaning grow up with the forms.

Let us, then, see how this aspiring form, which is the main distinction of Gothic from other architecture, came.

As Christianity spread northward through Lombardy, France, and Germany, and large churches were built, it was found that the flat roofs of Italy and Greece were not suitable to the climate; for though the smallest slope possible was enough to let the rain off, it was different when there came heavy falls of snow to rest on the flat roof—the weight would have seriously injured it; it was therefore necessary to give the roof a steeper slope, in order to let the snow slip off more easily. It was soon perceived that this did not in the least detract from the beauty of the building, but rather that the view of the roof sloping upwards over the side walls was in itself pleasing and beautiful. Soon greater height was wanted, and the requirements of the buildings demanded other arrangements, and thus, by separating the roof of the aisle from that of the nave, and adding chapels, transepts, and buttresses, that spreading tapering form was given to the buildings, which combined strength with lightness, and use with beauty. So the square form and horizontal lines, which accorded well enough with the character of the scenery and vertical sun of the south, and with that feeling of rest which a warm climate and

cloudless sky inspire, were changed for the aspiring form and broken outline and vertical lines which suited the hilly country, the sky full of windy clouds, and the busy active spirit which the changing weather produces.

I think most persons must have noticed how much more lively and striking the spires and pointed roofs of our early Gothic churches seem on a windy day, when the clouds are driving along in rugged masses, or curling upwards, and the sun comes out only in fitful gleams; while a Grecian building looks uncomfortable, except when the sun is bright and the sky cloudless, or only varied by a few white motionless clouds; and the former is the kind of weather (in different degrees) more common here. So much, then, for the peculiar and distinctive form of mediæval architecture, a form that may be traced in various modifications, from the Romanesque churches of Pavia and Milan, to that model of beauty and majesty the choir of Cologne Cathedral.

Let us turn now to the mode of expression: the classical way was, we have seen, by external ornaments and forms of beauty, but this was unsuited to a more northern climate, and the habits of the people; for the climate being more damp and cloudy, the pillars, capitals, and sculpture would not only be sooner injured, but also less clearly seen, and their beauty lost; and the people lived more in-doors than out: all ornaments, therefore, were, for both reasons, transferred to the inside, except only in the porches, which were half protected, and also so close to the spectator as to show their sculpture perfectly. This change was made very quickly, even in the Romanesque styles. But, how was the expression gained for the outside? By means of the windows: out of them, so to speak, the soul of the building looked; and through them, too, the light burst, in beautiful forms, into the interior. It was thus through beautiful shapes painted by the darkness within, and not by the light without, that the effect was produced. Mediæval architecture was at its perfection when, for a short time only, these two expressions were combined—when external lines of beauty were put in the only place where, in our climate, they could be seen, in front of the holes—when, I mean, the lines of stone-work in the windows were beautiful, as well as the holes between them. This was the case in the Geometrical Decorated of the end of the thirteenth century, and also in the earliest specimens of the Flowing Decorated. From that time the style began to degenerate, for in both points, in form and expression, those classical principles which had been discarded because they were found unsuitable, were returned to. The form of buildings of the "Perpendicular" style became lower, the roofs less pointed, at last almost flat, and the expression was made to depend upon external ornament, at first, only in the windows, but afterwards in external sculpture, and panelling an inch or two deep, which was quite inefficient in depth of shade; and so at last our buildings were merely square tasteless shapes, incrustated with unmeaning pieces of carved stone. Henry the Seventh's chapel at Westminster is an example of this sort of building, in which, at an enormous expense, there is produced a great deal of ornament but very little beauty, while the general form is heavy in the extreme.

The way was thus prepared for a recurrence to classical forms, modified: it was easy to see that graceful pillars and capitals and groups of sculpture were more really beautiful than the panelling of the Perpendicular style: if, therefore, external ornament was that on which the beauty of the buildings was to depend, these were, of course, to be chosen. Thus was produced the revived classical or Italian style, to which we will devote a few remarks. With regard to the general form of this style I profess myself unable to seize upon any peculiar principle; it appears rather to be such as long custom to Gothic forms would suggest, and the arrangements of modern houses and churches require. One new feature, indeed, of great beauty was added, I mean the dome, which had, indeed, been used in the East long before, but was unknown in our parts of the world. Horizontal lines were now entirely predominant over the vertical, a change which we noticed as commencing in the latest Pointed style.

However, in the other point, the mode of expression, we are at no loss; it is a recurrence to classical architecture, the expression being entirely dependent on external ornament. But as an external row of pillars would only darken the windows, and where the height of the building was divided into floors or stories, would be incongruous, they were changed for smaller ornaments, except at the doors (even these absurdities, however, are to be seen in the modern caricatures of Greek temples which are ranged round Regent's and St. James's Parks). Thus, in buildings of this style, the shape of the windows is neglected, but the borders of them are ornamented with mouldings and cherub heads and flowers; niches and pilasters are inserted in the spaces between, and bundles of flowers and fruits carved in stone are, as it were, fastened on other parts. But the most beautiful of the works of sculpture, in which the spirit and genius of the artist is called forth most, are of course human figures or groups of sculpture, such as of old filled the pediments of temples: these accordingly find their place in the Italian buildings. St. Paul's cathedral has its west front adorned with several bas-reliefs illustrating the history of the apostle, and on the tops of the three pediments are colossal statues of the apostles and evangelists, and the other ornaments I have mentioned are to be found on the side walls. Is this an effectual way of producing beauty in England? Let us think. Persons must certainly be wanting in observation not to have noticed the large statues on the roof of St. Paul's, yet I have known many such; but perhaps nine persons out of every ten that daily pass by have not observed the bas-reliefs and festoons, and these, remember, are such ornaments as, if they are not actually noticed, add nothing to the general effect. A person may not have noticed the exact form of a window in Westminster Abbey, yet if the windows were now blocked up he would at once miss them (I mean externally): the building would look blind and lifeless; but take away the carvings of St. Paul's, and who would notice the loss? I think very few. And why is this? The ornaments themselves are, many at least of them, beautiful. The reason seems to be the same which made the true classical style unsuitable for northern Europe—want of light and sunshine. External ornament, especially of a shallow kind, is thrown away in our climate; no one can see it, except under very favourable circumstances, when the sun does happen to shine brightly upon it.

There is also another impediment which exists in our towns, and London especially, which seems perhaps a trifling one, yet is really very great; and that is, the accumulation of dust and smoke. The walls of St. Paul's are begrimed with soot, only washed off in lines and patches here and there by the showers. To expose beautiful sculpture there for view is almost as absurd as to hang a picture in a chimney.

This, then, is the mode of expression of the Italian style, and these are the difficulties which lie in its way among us.

I have thus endeavoured to go through some of the leading points of the various styles, under the heads of Form and Expression; and, imperfect as this sketch is, it may yet, perhaps, suggest some thoughts which those who have more experience in the science may improve. At any rate, it is by such considerations as these that the architect must decide for himself, when he designs a building, on what means he intends to depend for the effect of his building, and how far his means are capable of producing the beauty he seeks. Time, labour, and money are often wasted on elaborate and accurately-worked ornaments, which yet add nothing to the beauty of the building, and which the designer would never have employed, if he had rightly known the principle of their effect, and had seen why it would be inapplicable in his particular case. It is in the hope of preventing such a waste of labour and ornament, and of promoting an effective beauty in all kind of buildings, that these remarks are offered.

F.  
MERTHYR TYDVIL WORKHOUSE COMPETITION.—Twenty-seven designs for this building were lodged, and those bearing the motto "Si fortuna jubat," found to be sent in by Messrs. Aickin and Capes, were selected.



## PATENT-LAW REFORM.

In some past observations on the protection of new inventions from piracy, we took occasion to remark that the patent laws are virtually and really smothering in their birth the hopeless fruits of the poor man's ingenuity, and suppressing ultimately that very invention which a patent law, worthy of common sense, should cherish and extend. We are glad to perceive that the committee of members of the Society of Arts, to which we lately referred, direct particular attention to this very view of the operation of the present patent laws, the first and main point on which they "wish particularly to obtain information" being "the effect which the existing system of patents may have had in suppressing and thus depriving the public of the knowledge and use of inventions, by those who are unable to bear the heavy expenses required under it." The committee, meantime, are about to consider the principles of jurisprudence which should regulate the recognition of the rights of inventors. A report on this subject will be referred by the council of the society to the committee, who, as already announced, have agreed to act in the promotion of "a legislative recognition of the rights of inventors by means of an easy registration of them in accordance with the principles agreed on by the council of the society in 1849." The report alluded to is not yet fully prepared, but we have reason to believe that it will go thoroughly into the subject, and advise a total overturn of the principles (if they can be called so) on which the present system is based. The right of the inventor to hold the fruits of his intellect and labour as his own property, subject, like all other property, to certain duties and conditions for the public good, will be insisted on, and ranked with the rights and duties of property in general, although not recommended to be given or held, like right to land, &c., in perpetuity. It is considered as an utter anomaly in law and equity that proprietors of inventions should be obliged to actually beg to be allowed to hold their own inventions to be their own property, and graciously to have granted them what, after all, is little more than a mere empty form of protection from plunder. In its preamble, the report will probably examine into the causes of the present unsatisfactory position of inventors, and the state of the present system of "jurisprudence" in invention; after which it will attempt to determine those principles which ought to regulate that jurisprudence. From the present state of things, it will endeavour to evolve what may be useful for future legislation. Justice will be done to the Registration Act as an irregular improvement in, or rather substitute for, the law as it stands,—as "a small patent law" in short, as the public have not been slow in making it. Indeed, the principle to be recommended is simply an evolution of the Registration Act itself,—an easy means of registering "the claims of inventors in general, which the law shall regard as valid until they are proved to be otherwise, as is the case already in almost every civilized country but our own. The establishment of any tribunal to investigate claims either before they are disputed or afterwards, is a separate and distinct question quite independent of the policy of recognizing the rights of inventors to the fruits of their labour. The report, however, will probably discuss that question also, arguing, so far as regards litigation, that as the thousands of registrations effected under the "Utility" Designs Act have not encouraged litigation, but have, on the contrary, generated a much-improved tone of morals amongst inventors, oppressed by the patent laws, who have taken refuge under this Act—often illegally, or under the pretence of registering mere "form or configuration," but almost uniformly with respect, to even such illegal claims of registration,—it is at least doubtful, and remains to be seen, whether an extension of the Registration Act to all inventions, as the proper and only patent law, will promote undue litigation. It will probably be shown that in the working of the Ornamental Designs Act there are thousands of simple calico patterns claimed and registered every year as legal rights, by payment of one shilling, under penalties of 5*l.* to 30*l.* for infringement, recoverable in the simplest way on summons before a magis-

trate, and yet, that there have not been an average of twenty convictions a year during the creation of at least 50,000 patterns.

As to the time and cost of the proposed registrations, the report will probably recommend that each registration should be valid for one year and cost one pound; but that at the end of that year the inventor should be called upon to perfect his registration, and to deposit a copy of the article he has produced, or a sufficient model of it, where practicable, amending his first specification within reasonable limits, should he require or desire it. If his invention have proved useless, he will doubtless not complete a further registration, and his right will lapse. If he find it worth pursuing he will be glad to do so, and to pay a sufficient sum.—say 10*l.* for five years' right; 50*l.* for other five years' right; and, lastly, 200*l.* for a final extension of five years, when the right should altogether cease. The total cost of a patent of twenty-one years would thus be 361*l.* By this regulation it may be thought, an unerring test would be afforded of the value which the public and the inventor set on an invention; the inventor, on the one hand, becoming a perfectly truthful index of the use which the public make of his property, and the public, on the other, obtaining the speediest surrender of rights.

Many other points of importance will be considered in this report; and we are hopeful, although by many it is deemed too late, that a discussion of the whole question will not only be gone into, but produce some practical result in legislative enactment, in sufficient time to promote the interests of inventors in the Great Industrial Show of the year now close at hand.

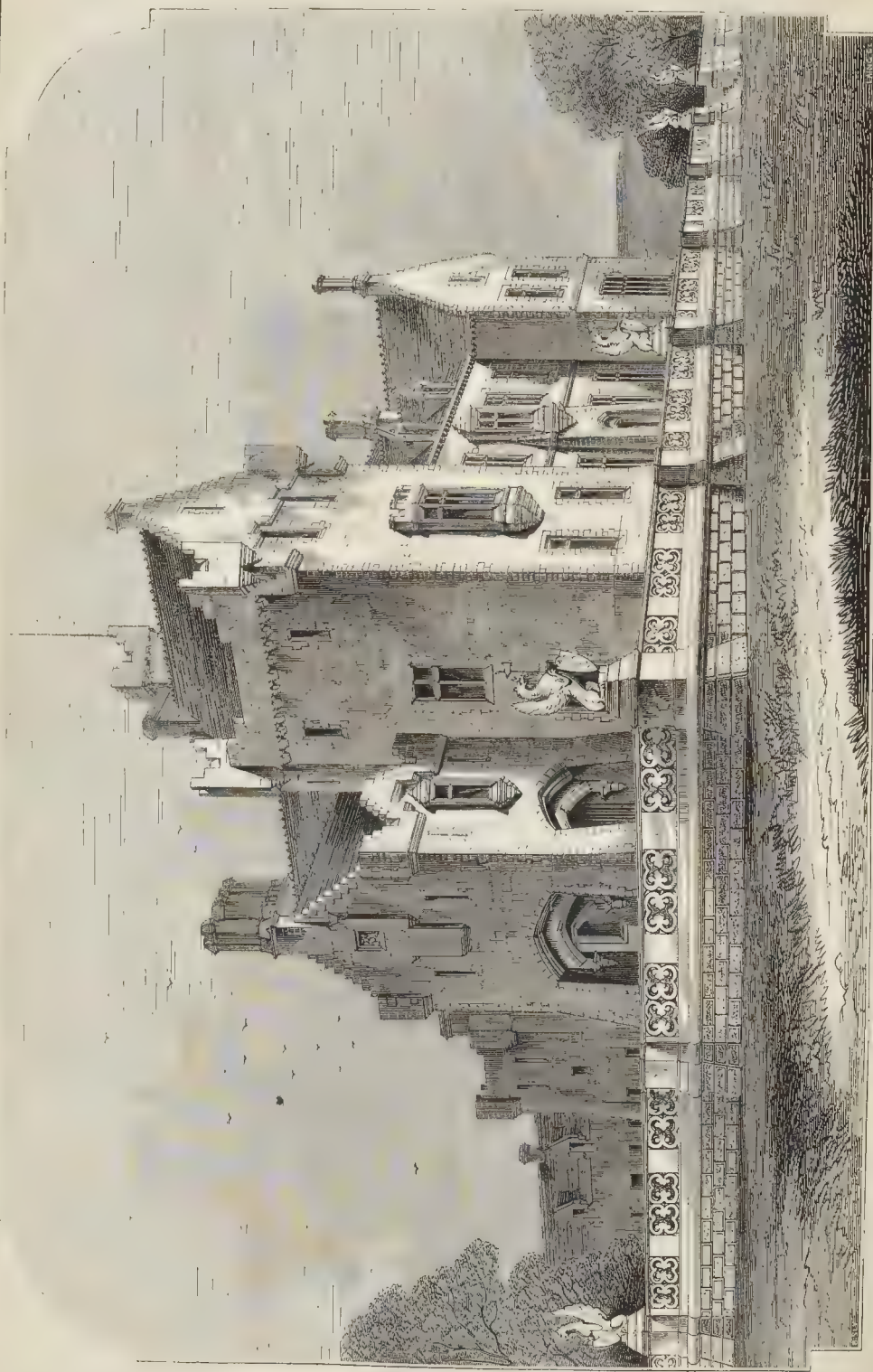
## NOTES IN THE PROVINCES.

A MEMORIAL window has just been completed in the church of Great Waltham to the late Mrs. Tuffnell, of Langley. It is placed on the south side of the nave, and is composed of three lights cinque-foil headed, and the principal subjects are the Saviour in Glory, Virgin Mary, and Elizabeth. The work was done by Messrs. O'Connor. The cost, including repair of stonework, was 115*l.* The church contains another memorial window, erected in 1848 to the late Mr. Charles Dyer, architect.—On 7th inst. Waltham Church was reopened on its repair with increased accommodation. The nave has been lengthened, and open seats substituted for large square pews. The mouldings of arches and capitals, &c., have been restored, and several windows filled with stained glass. The exterior has also been repaired, the north wall of north aisle rebuilt, and the tower, &c., improved.—The Maidstone council have been called on by nearly 500 of the resident householders to erect public baths and washhouses in that town.—A new company is to apply to Parliament for an Act to build a pier, to be called "the Strand Pier, Quay, and Esplanade," to be erected near Ryde Castle, at the east of Ryde.—The chancel of Kingsthorpe Church, which was much decayed, has recently been, in great part, taken down and rebuilt, the roof raised, and an east window, designed by Mr. W. J. Donthorn, architect, inserted at the expense of the present incumbent.—A Hereford paper congratulates the citizens of Hereford on the improvements already effected, and also on the very extensive ones contemplated, with respect to their cathedral and its immediate vicinity, more especially in the cathedral-close itself. The unsightly paling or boarded barrier which has so long surrounded the structure is also now in course of removal; and it is said to be the intention of the Dean to summon to his aid a landscape gardener, for the purpose of putting the Cathedral-close in a proper state.—An important event has just taken place at Holyhead, in the final breaking-up and closing of her Majesty's dockyard establishment. This measure was carried out a few days ago, when all the mechanics and labourers hitherto engaged in the various departments of the dockyard were discharged.—Our paragraph as to Aberdare, a fortnight ago, said the proposed new church was begun. It is not, however, to be commenced till the spring. It is to accommodate 750 adults—500 of the sittings are to be free. The site has been given by Lady Bute, with a

handsome subscription in addition. The population of Aberdare is now between 13,000 and 14,000; present church accommodation 176; not one sitting free. Schools have been lately built at the hamlet of Cwm Bach, and at the town of Aberdare, to instruct 300 children in the former, and 400 in the latter, and in each of which divine service is at present performed. Mr. Clive, M.P. for Worcester, has determined to erect a church on his estate, at Heolyfelin, to meet the spiritual destitution of the locality adjoining, which schools are to be built immediately. A vicarage-house has been lately erected by the Rev. John Griffith, M.A., incumbent, which, with St. Elvan's church, Aberdare, and the schools at Cwm Bach, Aberdare town, and Heolyfelin, are from the designs of Mr. A. Moseley.—During a recent discussion in the Sheffield Council as to supporting a design entertained by the guardians to erect their own gas works, and thus save, as estimated, no less than 100*l.* a year, at an outlay for works of 430*l.*, Mr. Groves, as reported by the local *Times*, "read a number of statements showing the cost of manufacturing gas at a number of private establishments. It appeared that at the West Riding house of correction at Wakefield, gas was made at a cost of 2*d.* per 1,000 in 1849, and at 9*d.* per 1,000 in the former half of 1850. He mentioned three private establishments in Sheffield at which gas is made at 1*s.* 6*d.* per 1,000, including all expenses, 3*s.* 4*d.* per 1,000, and less than half the price paid to any gas company." Messrs. George Wright and Co. of Liverpool, informed him that the canal coal used by the Liverpool Gas Company costs on an average 12*s.* per ton. The price charged for gas is 4*s.* 6*d.* per 1,000, coke selling with difficulty at 6*s.* 8*d.* per ton. In Birmingham, where coal costs 11*s.* 6*d.* per ton, the price is about to be charged 4*s.* per 1,000, with a discount of 10 per cent. where the consumption exceeds 100,000 feet. At the Sheffield workhouse, from September 30th, 1849, to June 30th, 1850, 796,000 feet of gas was consumed; the cost for the first three quarters being 5*s.* per 1,000, and for the last quarter 4*s.* 7*d.*; total amount paid, 196*l.* 19*s.* 10*d.*"—Messrs. Losh, Wilson, and Bell, of the Walker Ironworks, at Newcastle, according to the *Journal of Gas Lighting*, have been contracted with by the New River Company for the supply of 1,500 tons of cast-iron pipes, thirty-six inches diameter, to be made on Stewart's principle. This house had the contract for some pipes of the same description recently supplied to the Great Central Gas Consumers' Company.—The ancient church of All Saints, Cockermouth, we regret to say, was destroyed by fire on Friday morning in last week. Scarcely anything but the walls and tower remain standing. The paintings in the church were destroyed. This church was enlarged and beautified in 1825, when 322 additional sittings were obtained, half of which were free and unappropriated, so that it could accommodate about 1,000 persons. The tower contains a peal of six bells, a clock, and chimes. The church was built on the site of the original chapel, which had a chantry, endowed in 1399 by Henry Percy, Earl of Northumberland. It is at present supposed that the fire was caused by some pipes which have just been laid in the chancel to warm it through the winter.

ENLARGEMENT OF SMITHFIELD.—Application is to be made to Parliament in the ensuing session for an Act for enlarging the site of Smithfield market, and improving the approaches thereto; and for these purposes to take the land and buildings between Snow-hill on the south, King-street and West Smithfield on the south-east, Smithfield-bars on the east, Cowcross-street on the north, Turnmill-street on the east, Castle-street on the north, and Victoria-street on the west. It is also intended to take power to erect a dead meat market and slaughter-houses, and other buildings connected therewith, and to provide the same with all necessary conveniences, and to alter acts relating to market days, tolls, stallages, &c.—We may here also state that a similar application is to be made by the Islington Cattle-market Company for an enlargement of that market, an incorporation of the company, and other purposes.





CLONGHANODFOY CASTLE, LIMERICK.—MR. G. FOWLER JONES, ARCHITECT.



## LODGE AT CLONGHANODFOY CASTLE.



## CLONGHANODFOY, CO. LIMERICK.

THE accompanying illustration is the north-west view of Clonghanodfoy (from Clanodvie), in the county of Limerick, recently erected by the Misses Gascoigne, of Parlington, Yorkshire, from the designs of Mr. G. Fowler Jones, architect, York. The style mainly adopted is the Old Scotch Castle or Manor House style of Scotland, which prevailed during the Stuart period: it comprises occasionally the Jacobian, and features in common with the Elizabethan; these, however, in the present instance, are chiefly confined to the interior and the terrace. On the ground floor, in the principal tower, is the library; behind which is the hall, a large apartment entering from the *Porte Cochère*; beyond the tower, in the curtain building forming the principal front, is the morning-room, with grand staircase behind, and anti-room beyond; the gabled return shows the end of drawing-room, behind which is the dining-room. In the rear of the *Porte Cochère* is seen one side of a square of domestic and stable offices, open on the side parallel with the principal front. The terraces enclose three sides of the buildings; the further contains the fountain, with flights of steps from the ornamental gardens.

The stone used is the old red sandstone found on the property. The roofs are constructed of cast and wrought iron, and covered with Killaloe slating. The open-work in terrace parapets, as well as the griffins on the pedestals, are cast in Portland cement.

In the interior, the hall wainscoting and floor are of oak, as are the carved dressings of chimney-piece; the stained glazing of the windows, painted by the Misses Gascoigne, present medallions containing scenes from the

life of St. Patrick. The staircase, also fitted up with oak, contains, in the stained glass work of the window, the armorial bearings of the family, also painted by the lady proprietors, whose artistic skill was further exercised in painting Arabesque panels for the door and window shutters of the drawing-room, and upon glass panels for insertion in the marble chimney-piece of the same room.

The following are the dimensions of the principal rooms:—Dining-room, 35 feet by 23 feet; drawing-room, 35 feet by 23 feet; ante-room, 24 feet by 19 feet; morning-room, 24 feet by 19 feet; library, 24 feet by 24 feet; hall, 27½ feet by 25 feet; and staircase, 22½ feet by 21 feet.

Mr. Thos. H. Carroll, of Dublin, was the contractor for the stone-work; Messrs. Henry and Thos. Creaser, of York, contractors for the interior finishings; and Mr. John Walker, of York, founder, supplied all the iron-work of roof, &c.

The other illustration represents one of the principal lodges.

## EXHIBITION OF DRAWINGS AND SKETCHES, PALL-MALL EAST.

THE chief objects the promoters of the new exhibition, opened at the Old Water Colour gallery, had in view were, to bring together some of the best works of modern artists, in the shape of drawings and sketches, so hung that they might be fairly seen; and to give artists another annual opportunity of coming into immediate communication with purchasers. Seeing what has been done in a very limited space of time, and without any lengthened notice to artists, and aided as they will be by suggestions which they have already

received from various quarters, there is every reason to expect that they will be able next year to bring together such a collection of sketches and drawings as will demand the attention of every lover of modern British Art. Indeed, this is the least that can be said of the present exhibition. It consists of 326 excellent works—195 of which are for sale, or rather were, for many were sold at the private view. No charge is made either for the exhibition or disposal of any work, and the purchase is to be completed in all cases by direct communication with the artist. Eighty-six of the works exhibited are studies from the portfolios of artists who desire to retain them; and the remainder are contributed by owners whose names are placed against them in the catalogue.

In this last list we are glad to find her Majesty, who has been pleased to sanction this well-meant endeavour to provide an exhibition of works of art at a time of the year when such enjoyments are few, by a contribution from the royal collection.

In a brief introduction to the catalogue the promoters express, on the one hand, as well they may, gratification at the manner in which their efforts have been responded to by the profession; and on the other, regret that the space afforded by the gallery did not admit of their applying to other artists, whose works, they are fully aware, would have been quite equal to any in the present collection. To these they intend to apply for co-operation on another occasion. We recommend our readers to visit the collection. They will see how well oil and water-colour drawings may be hung together, if mounted, and, if we mistake not, enjoy a pleasant hour.



The following is a list of some of the pictures sold at the opening of the gallery:—22. "Study from Nature," by F. W. Topham; 40. "Beatrice," by A. Elmore, A.R.A.; 63. "Carting the Wheat," by S. Palmer; 71. "A Breton Interior, painted on the Spot," by E. A. Goodall; 76. "On Brighton Beach, study from Nature," by C. Davidson; 87. "Original Sketch for the Picture in the Royal Collection at Osborne, painted by command of H.R.H. Prince Albert, representing the Arrival of H.R.H. at Dover in February, 1840," by W. A. Knell; 99. "Near Bandon, South of Ireland," by Geo. Frupp; 121. "Highland Boy, with Dead Stag and Deerhounds," by Frederick Taylor; 129. "A Sketch, painted on the spot," by H. J. Boddington; 135. "The Last Load," by E. Duncan; 155. "Make Hay while the Sun Shines," by C. Davidson; 156. "Cupid and Psyche, from the fable of Apuleius (the original sketch for a picture painted for H.R.H. Prince Albert)," by Thomas Uwins, R.A.; 161. "1. Morning Prayer—2. Visiting the Sick: Peace be to all in this House—3. The Child's First Prayer,"—by R. Redgrave, A.R.A.; 170. "The Impending Mate" and "Mated," being the original sketches for the larger pictures, by F. Stone; 175. "Interior of an English Cottage," by E. A. Goodall; 194. "A Sketch from Nature, painted on the spot," by H. J. Boddington; 198. "The Secret Progress of the Reformation, sketch for a picture," by James Godwin; 210. "Superstition; the Imposition of Relics and Indulgences," by the same; 246. "Study of a Female Head," by H. Le Jeune; 246. "The Intercepted Letter," by G. Cattermole; 263. "Presentiment of Ill," by G. Cattermole; 297. "Sportsman and Dogs," by R. Andsell; &c.

Anthony, Lake Price, John Martin, E. M. Ward, W. Bennett, Hook, Egg, E. Duncan, Frith, Tenniel, Holland, Frost, F. Goodall, Webster, Turner, and Solomon, are amongst the exhibitors of the most noticeable works.

#### HOW FASHIONS CHANGE IN ARCHITECTURE.

In the course of a paper read by the Rev. B. E. Bridges, "On some of the Distinctive Features of Christian, as contrasted with Classical Art," at the recent annual meeting of the Bedfordshire Archeological Society, the reader connected the use of the dome in architecture with degeneracy, both doctrinal and practical, and thus proceeded:—Let us look, then, to ourselves. Far other shows our own Metropolitan Church of Canterbury: far different its structure, and far more appropriate: no stately dome rises from its centre, but a tower is seen instead—the topmost stone in each of whose tapering pinnacles consummates the beauty of devotional effect which prevails throughout. And such the structure, such the character, generally, of all our other cathedrals—with one single exception—that, indeed, both large and signal—in the metropolis itself. There, in professed, though humble, imitation of its Romish prototype, a kindred dome lifts up itself on high:—reared, however, during a degenerate period of our Church's history, from which it is to be hoped we have now at length emerged,—reared on a reduced scale of pompous grandeur, externally, on a reduced scale of pompous grandeur, the swelling proportions, but without aught of the internal richness and splendour,—the gorgeous gildings and rich mosaics—of the original—combining thus the evils of a semi-classical and inappropriate style with a coldness and a poverty all its own. The very inscription which runs round its central dome, in recording the name of its unquestionably great architect, condemns the greatest of his works, which it professes to extol, or at least indicates with sufficient clearness the purpose to which it would have been more properly made subservient: "*Si monumentum quaeris, circumspice*"—in humbling contrast, it must be allowed, with the corresponding circumscription in the church of the illustrious fisherman, emblazoning, as it does, those words of high approval and large commission, which, however unhappily since misunderstood and misapplied, were yet the words of Christ himself addressed to his first apostle, and express the awful powers vested in, together with the lofty destiny reserved for, that spiritual yet visible society of

which he who spake them was to be the one invisible head, but he to whom they were spoken, nevertheless, one main human pillar. No: repudiate we the swelling dome of Italy—for our churches at least—together with those erroneous doctrines and corrupt practices, which in many respects it not unaptly typifies: that dome of swelling pomp, when it surmounts a Christian church, seems to belie the original high disclaimer, "My kingdom is not of this world"—it ill accords with the unearthly character of the Christian system, in a political point of view, still less with the devotional spirit, which is its distinguishing moral feature, and which is most adequately represented and palpably embodied in the solemn pointed arch and heaven-seeking spire of Gothic architecture.

#### METROPOLITAN WATER SUPPLY.

THE Central Board of Health having employed the Hon. William Napier to visit the gathering ground of their proposed rain-water supply, and make a careful re-examination of its sources, has reported to the Board, recommending that instead of carrying out their scheme as previously proposed, numerous springs lying around and within a bird's-eye view of Farnham-hill, be collected at their sources, through tile, brick, and pipe conveyers, to mains, and conducted by Wimbledon Common to the whole metropolis, and which might thus, he calculates, be supplied without intermission to the highest requisite level, and without any cumbrous system of storage, reservoirs, or any breadth of area whatever being required, but simply an underground right of way, running great part concurrently with railway lines already laid.

The results of Mr. Napier's experience with respect to the quantity and quality of water to be derived from these gathering-grounds, are thus stated:—

"The report gives 28,000,000 of and under three degrees of hardness. My results give 40,000,000 of and under one degree, and 10,000,000 of and under two degrees of hardness. This improved quality is gained by my development of the principle of taking the water from its source, (that is, where it issues from pure sands), and leading it away before it can be affected by contact with soils. I beg to express my conviction that the purity will depend entirely on the careful execution of the work: it would give, to recapitulate its qualities, 40,000,000 of water, of primitive purity, perfect as to aeration, of a grateful temperature, about 50 degrees, brilliant in colour, soft almost as distilled water, and almost free from all mineral, and vegetable impregnation, sufficing the supply, at the estimate of 75 gallons per house, of 523,126 houses."

#### ELONGATION OF PALL MALL, AND SOME LONDON IMPROVEMENTS.

HAVING at various times suggested many public improvements in the parks, piazzas, and causeways of the metropolis, perhaps you will further allow me to recall the recollection of a plan already published by THE BUILDER, to improve the noblest range of buildings in London, as put forward by me,—one which would let daylight in upon the majestic Strada, Pall Mall, and at the same time give to the inhabitants of the great city a direct approach to Hyde-park without a hill;—a plan which could be accomplished by the purchase and demolition of only eight houses, viz., one at the corner of St. James's-street, six in Cleveland-row, and one (Lord Sydney's) facing the Green-park; and above all, a plan that would not require any expense beyond the formation of about a quarter of a mile of road (and for this the rubbish of the prostrated walls would yield material) from St. James's Palace, in the line of Pall Mall, direct to Constitution-hill.

This line would strike out (as before indicated) at about 200 yards southward of the duke's colossal statue, and terminating at the *chevaux de frise* of Buckingham-gardens, would give a sylvan termination at one end of a boulevard, the other end of which would originate from the tympanum of the National Gallery.

The whole expense of this suggested improvement could not exceed, say 80,000*l*. The line of palaces from the Gallery, by the Opera House, the United Service, the Athenæum, Reform, old St. James's, and Lord Ellesmere's, would be an avenue worthy of London.

This route, I said, should terminate at the wall of Buckingham Palace-garden—would it did not! If the line were drawn on to Belgrave-square, what an illustrious range it would present! The utility, the beauty, the nobility of such a thoroughfare cannot be overestimated.

Perhaps an extent of four acres (certainly not exceeding five) might be excised from the royal gardens; but this is an acute angle—a mere strip between a row of houses (Grosvenor-place) and a wall, both of which must cast a double gloom on the walks that nestle under them. It is not likely to be (just at this fax end) of much avail to the royal family; but if it were, there is a scope of space full under the palace walls (the road in Piccolo) which would make a fair equivalent, or, if necessary, an equal section of the public grounds nearer the palace.

The convenience of vicinal plots gives to them always an enhanced value: an outlying portion is well exchanged for another, equal in extent, that might form a ring-fence, and Horace's "*Angulus iste*" was to the loving proprietor what it continues to be in our unpoetic days. To the public such an exchange would be of inestimable value, and for the royal family such a dignified seclusion not less to be desired. Your professional architects, who are capable of projecting beautiful designs, are not always the best judges of what may be most useful, most expedient, and most economic. He who, unfettered by the trammels of professional conventionalism, takes an unbiased glance at ancient (mayhap consecrated) boundaries and limitations, may strike out a utilitarian embellishment with more justice, truth, and even good taste. The stonewher sees no farther into the millstone than the passenger who sees him strike. Whilst the one profits by his calling, the other can trace with equal precision the line of the chisel. So, Sir, having seen others hammering at works of an operose description, I put in my spoke, in the hope that it is not too late for him who began first as *ille ego qui*

QUONDAM.

\*.\* If we are rightly informed, the late administration of the Woods and Forests had resolved to make this opening to the Green-park as soon as certain leases fell in, which would be in 1861. Why should we wait so long?

#### MODERN STATUARY.

At the present time the public mind is much engaged with the subject of erecting testimonials to the memory of our late great statesman, Sir Robert Peel: will you, therefore, allow a few remarks upon statues, and their general position in this country? Perhaps in no nation are they better executed or worse placed; witness most of those in our great metropolis—either altogether out of sight, except at an immense distance, as the York and Nelson monuments—placed so, that if an animal be introduced its head takes the place of its rider's, as the Wellington Statue at the Royal Exchange; or if neither of the before-mentioned absurdities are perpetrated, the whole mass is placed on the key-stone of some arch, as at Hyde-park-corner. Now, Sir, if we wish to see statues placed in their proper position, we must look to the land of sculpture's birth—Greece or Italy: there, though in many cases they are raised much above the level of the eye, yet a due regard is always observable to their attitude and disposition, and in no case, that I am aware of, are they placed so completely beyond the ken of mortal eye that their finer parts are lost in the distance from whence they are best seen. Again, the climate of England and its atmosphere, loaded with carboniferous impurities, so very essentially differs from that of classic ground, that what is suitable to the one is most inapplicable to the other. I need not mention the Marble Arch at Buckingham Palace as an example. Our ancestors to the fifteenth century were well aware of these facts, and therefore placed their effigies under cover of cathedrals, walls, &c.; or if they did erect them as independent monuments, the statue and its covering formed one and the same composition, and this not only for ecclesiastics, but others also—witness Queen Eleanor's Crosses. Nay, so convinced were



they of the necessity of cover for their statues, that if placed against a building, canopied niches were made to receive them. As to material, bronze is most certainly the best that can be obtained, but, independent of its great cost, it soon loses the beauty of its fine arisbes by the great accumulation of dirt which prevents their being seen; and, besides, I have a strong idea that in many towns where large chemical works are carried on, a great decomposition of its finer parts would sooner or later take place. White statuary marble is, for reasons before stated, most unsuitable for exposure to the weather, but have we not in our country materials equally good and much better suited to the purpose? Who will say that a statue must be denuded of shelter Anglesey marble would not meet every requirement, or if placed under cover there are plenty of quarries in Yorkshire and Derbyshire giving a first-rate stone—fine in its component particles, but solid in its texture, and taking a good weather face? I will not trespass longer on your time in saying how that, in the so-called dark ages, beauty of design and veneration for the departed were most admirably blended with utility to the living; how one memorial had a reservoir of spring water attached, another served as a market-cross, while a third, with the statue of its founder in the court-yard, still shelters the poor and afflicted.

C. W. ORFORD.

#### CONSTRUCTION OF ENGINE CHIMNEYS.

A CORRESPONDENT who forwarded us a design for an engine chimney 150 ft. in height from the ground, with a pedestal 9 ft. 6 in. square, and a diameter for the shaft of 8 ft. at bottom and 5 ft. at top, the internal diameter of the flue 3 ft. 6 in. all the way up, is surprised at our refusal to engrave it, because he thinks it would tend "to elicit different opinions." It could only elicit one opinion as regards itself, namely, that the diameter is much too small for the height. The arrangements required by the official referees for metropolitan buildings, in respect of engine chimneys, will serve to show this without further comment. They require that the base of the footings should be one half longer than the base of the shaft, and be placed as low as the base of the footings of any adjoining wall or building. If the shaft be square, the height of it must not exceed ten times the length of the side at the top of the footings; if circular, twelve times the lower diameter. The shaft must diminish in size upwards, and be at least one-third less at the top than it is at the bottom. It must be bonded every six courses with hoop-iron, lapped at the edges. The projection at head of chimney, if any, must not exceed three-fourths of the thickness of the brickwork from which it projects.

#### THE VENTILATION OF MINES.

##### INSTITUTION OF CIVIL ENGINEERS.

On the 10th inst. Mr. William Cubitt, President, in the chair, the subject of the paper read was, "The Ventilation of Collieries, theoretically and practically considered," by Mr. W. P. Struve.

The author commenced by showing that the general principles which ought to govern the ventilation of collieries, were—

1st. That a current of air through the channels of collieries, at a velocity of five feet per second, was sufficient for most purposes.

2nd. That a current exceeding that velocity would only be attained at the expense of leakage and other evils.

3rd. That in order to obtain the requisite supply of fresh air, the channels of a colliery or mine ought to be enlarged, according to the exigency.

In the process of laying out a mine, a subdivision occurred by which the workings were apportioned into numerous compartments, which facilitated the system of splitting the current of air, or diverting it into numerous channels, giving to each compartment a separate and, therefore, more effective ventilating force: at the same time the area of the channel was enlarged, and the aggregate length of the air tube shortened, so that it was quite impracticable to pass through the workings of a mine, three hundred cubic feet of air per minute for each man employed.

The details of two experiments at the Eagles-bush and Ynis David Collieries, where the air was pumped out by Mr. Struve's Mine Ventilator, showed that a large proportion of the air was drawn from the old workings and the "goaf," or broken ground surrounding the colliery, and did not come down the intake shaft, and traverse the actual workings, as it ought to have done.

In both these cases, the enlarging and splitting of the air channels, so as to reduce the velocity of the air to about three feet or four feet per second, would have produced most beneficial results.

These principles were shown to have been lost sight of in the majority even of the great collieries, and the power of rarefaction by a furnace was trusted to for dragging the long column of air over and through innumerable impediments.

The experiments of Mr. Nicholas Wood, Mr. G. Elliot, Mr. H. Vivian, and other mining engineers, were quoted, to demonstrate the insufficiency of the "steam jet," as a means of promoting ventilation, showing that it was a wasteful application of power, when compared with the steam force employed to work the lecturer's own Mine Ventilator at the Eagles-bush Colliery.

The discussion upon this paper was announced to take place on Tuesday, 26th, when Mr. Gurney will perhaps say a word in reply.

#### Miscellaneous.

ON DIRECTING THE COURSE OF BALLOONS.—The writer of the article on the above subject in THE BUILDER of last week is probably not aware that what he suggests was proposed many years ago in France. On December 2, 1783, the Academy of Lyons offered a prize of 1,200 livres for the best dissertation on the following subject:—"To find the most certain and most simple method of directing the air balloon horizontally and at pleasure." One hundred and one essays were presented, and amongst them one by M. Le Normand, of Montpellier, proposing to employ steam. A boiler was to be heated by a large lamp in the car. Steam was to be conducted by tubes up to the equator of the balloon, and was to escape at each side of it through a horizontal tube at right angles with the diameter. This was thought to be the best plan amongst the whole of those received by the academy, but unfortunately one thing had been overlooked, or perhaps had not yet been made known. A balloon, in passing from one current of air to another, revolves on its axis, and therefore, instead of going in one direction, it would go in many directions perhaps not desired. We must have some lighter power than a steam-engine for propelling a balloon: the weight of the boiler, full of water, &c., would be objectionable.

##### AERO.

GUIDANCE OF BALLOONS.—Another attempt is being made at Paris to apply the principles of piscatory locomotion to ballooning. A completely fish-shaped balloon has been formed at the Hippodrome, with two small rudders for a tail, one for steering in ascent and descent and the other in horizontal movement. The fins are represented by two short and wide oars, moved by a simple mechanism. The whole apparatus is banded with whalebone, and covered with network. The model is rather diminutive, measuring 5 yards only in length, and containing 1,200 litres of gas; but experiments with it are said to have been remarkably successful. The (re-)inventor is a M. Arnault.

##### BRITISH ARCHAEOLOGICAL ASSOCIATION.

A public meeting was held November 13th, Mr. T. J. Pettigrew, V.P. in the chair. Exhibitions were contributed, by Mr. H. W. Rolfe, a drawing of a very early spur; by Mr. C. R. Smith, British coins and gold coins of Justinian; by Mr. Russell, seals, one reading "Crede Michi," discovered Nov. 8, 1850,—all these were found in the Thames;—by Mr. Warren, a bronze weight, having a lion passant on one side and a castle on the other, with an obscure inscription: Mr. Planché suggested that it might have belonged to the city of Norwich;—by Mr. Bell, of Gateshead, rubbings of inscriptions from bells and other antiquities, which had been bought by a dealer in old metals at Newcastle; by Mr. Forster, carvings of ani-

mals, foliage, &c., found on the back of the chimney-piece of the Old Queen's Head at Islington, when that house was pulled down, and which would belong to about the time of Henry VII. Dr. Bell read a paper on the history of famous Stones which have been used at various periods in the coronation of kings, and for other important national purposes, showing that these were usually surrounded by others, frequently of a smaller size, on which sat the officers of state or other important personages; and that such collections of stones are not only mentioned in the earliest histories, but are to be found in every country both in the old and new worlds. Many interesting facts were mentioned respecting the combination of particular numbers in the arrangement of these monuments. The history of the coronation stone at Kingston, and that in the coronation chair at Westminster, formed an important part of the paper.

NEW CHURCH, MARGARET-STREET.—Sir: I am requested by some of the principal subscribers to the church about to be erected on the site of Margaret Chapel, Margaret-street, to forward to you the following particulars with reference to your notice respecting the laying of the first stone. 1. It is not "Mr. A. B. Hope's church," but is to be built by subscription, Mr. Hope being only one out of several liberal contributors. 2. The architect has not *carte blanche* for the expense. The edifice will be constructed under contract in the usual way for a limited sum. 3. No "two religious houses," in the sense in which these words appear to be used, are to be built. Two houses are to be erected; one for the residence of the clergy, and another for the choir and the schoolmaster, in an ordinary mode.—JOHN DAVID CHAMBERS,—one of the treasurers of the subscription fund.

TERRA COTTA DECORATIONS.—Messrs. Bowers and Baddeley, of the Staffordshire potteries, have recently submitted to us some architectural decorations made from a combination of Staffordshire clays. The clay when properly mixed is subjected to a great pressure, in order to drive out the fixed air: having undergone this process, the clay is moulded and baked in the usual mode of baking earthenware. From the great pressure employed in the process of preparing the clay and in moulding it, as well as from the effect of certain ingredients employed in the process, the clay after having been baked assumes a perfectly vitreous character, and loses its absorbent properties. Bricks and ornaments of all kinds thus formed are impervious to wet, while from their non-absorbent qualities they may easily be painted. In work of this description the difficulty is to prevent warping and obtain straight lines. The patentees, however, speak with confidence of their ability in this respect. A good field is open to them.

PORTLAND HARBOUR OF REFUGE.—We understand that a number of additional tram-waggons have lately been received at the works, with a view to the employment of a still larger number of convicts, on the arrival of whom this enterprise will be carried on with increased rapidity. Amongst the machinery to be observed on these works may be mentioned a gigantic crane, on a moveable platform, intended for the raising of stones from the recesses of the quarries, and which is capable of sustaining, with ease, the weight of sixty tons. An engine has also been recently erected for the chemical impregnation of the driving piles for their preservation, by a new and ingenious process, by which they are rendered impervious to the action of water.

WIDENING OF CHANCERY-LANE.—A meeting of the inhabitants of Chancery-lane and its neighbourhood, was held at the Mechanics' Institute, in the lane, Mr. Taylor in the chair, when a committee was appointed, and resolutions were unanimously passed, recommending a public subscription to make up the sum requisite to open the Holborn end of the lane (in all 2,000*l.*) and expressive of the regret of the meeting at the want of some public institution for the removal of public nuisances, such as the obstruction in question. The chairman had already collected upwards of 150*l.* and the pavement commissioners, we believe, are still ready to contribute 750*l.*; so that the negotiation with Mr. Steel for the corner space at 1,000*l.* appears to be already secure.



"STOP THIEF."—Our great moralist and joke-sketcher, George Cruikshank, has published a small pamphlet under this heading, the object of which is to lead housekeepers to hold their own against housebreakers. He will startle some of his readers by the exposition he gives of the means and appliances possessed by the burglar; but if he lead them, in consequence, to examine and reform the fastenings of the doors and windows, his end will be answered. He points out particularly the value of the thumb-screw and the wedge for securing doors and shutters. He recommends iron hoops nailed at the back of the panels, and suggests that young ladies, when they feel fatigued with their crochet work, should form some pretty pattern on the panels of the parlour shutters in nail-work. "With a sweet little dear of a basket of nails and a little love of a hammer, they might (taking care not to knock their dear little fingers) do their papas and mamas good service,—for the housebreakers' sharp-cutting instruments dislike to meet a nail as much as anything."

INTERNATIONAL EXHIBITION PRIZES.—The Goldsmith's Company have decided to award 1,000*l.* for prizes to artists of the craft of the United Kingdom who can produce works of the highest design and merit, in gold and silver plate, for the Exhibition of 1851. The 1,000*l.* is to be divided into prizes varying from 300*l.* to 20*l.* and 10*l.* for works of a costly description, which probably will be eventually purchased by the company. There will be candelabra, church plate, services, and smaller objects. The assistance of several noblemen and gentlemen of known taste in the fine arts is to be obtained to aid the court in judging and awarding the prizes.

CHEAP MOTIVE POWER.—Supposing there was a well or reservoir of water near a building where manufacturing power was required, and that the wind was employed for raising or pumping this water into another reservoir situated at the top of the building, or some other convenient elevation; the water thus raised might be made to fall through a pipe connected with a hydraulic engine at the base; and the power so obtained made to turn machinery of any kind—its intensity and equality of action being regulated according to necessity. The power of the wind to raise the water might be employed when available, either day or night; but the descent of the water only when needed. The water, of course, would be made to fall into the same reservoir from which it was raised, and thus be used over and over again.—*Mining Journal*.—[A suggestion none the worse for not being new.]

CITY IMPROVEMENTS.—It is intended, by a new Act to be applied for in the ensuing session of Parliament, amongst other purposes, to take power, with consent of the cathedral authorities, "to lay part of the ground area or space in the west front of St. Paul's Cathedral into the public street," and also to compel the consumption of smoke in all furnaces and fireplaces used for manufacturing or trade purposes; and to remove more effectually other nuisances, encroachments, obstructions, projections, and annoyances. Various additional powers to the Sewers Commission with respect to sewers, slaughter-houses, &c. are also to be applied for.

RAILWAY JOTTINGS.—The railway explosion at Birmingham, noticed in our last, is now generally believed to have resulted from foul air, generated, as in coal-pits, in the recesses of piers of the arches, there being no air passages through many of them.—The London and North-Western Company are contemplating laying out a large plot of surplus land at Pinner (13½ miles from London) as a park, in which villas of a respectable character will be erected. They propose to give to the purchaser of each plot of ground the privilege of a free ticket terminable at the end of so many years, in order to afford parties from London facilities in the erection and habitation of substantial dwellings at the above place. The London and North-Western Company have at present less suburban travelling than most of the other metropolitan railways, and the course now proposed will assist in developing this important source of revenue.—"A very interesting and highly satisfactory experiment," says a contemporary, "was made on the sink-

ing of one of the cylinders of the new iron bridge erecting across the Shannon by the (Irish) Midland Great Western Railway Company. These cylinders had been previously sunk by excavating and removing the interior, and forced down by their own weight and such additional weight as was found necessary; but in this instance a method which has been found successful by Messrs. Fox, Henderson, and Co., the contractors for the bridge, on many occasions, but which has not hitherto appeared applicable to the structure in question, was resorted to. [The well-known process of the late Dr. Potts, using atmospheric pressure, is here described.] The effect was as though many tons weight had suddenly fallen on it, for the whole rapidly descended between five and six feet into the ground until checked by the obstruction of a piece of timber. The sinking of this cylinder, ten feet in diameter, through hard yellow clay did not occupy more than a few seconds."

WANDLE WATER AND SEWERAGE COMPANY.—A preliminary announcement has been made of the formation of a company to supply Brixton, Clapham, Dulwich, Norwood, Sydenham, Wandsworth, Battersea, Putney, Lambeth, Walworth, Camberwell, Peckham, and other districts South of the Thames, with water; to provide public baths and wash-houses, and public conduits; to improve the sewerage and sanitary condition of Croydon, Carshalton, Morden, Mitcham, Merton, Wimbledon, Tooting, Streatham, Wandsworth, and other places through or near which the river Wandle flows.

ELECTRO-TELEGRAPHIC.—The Submarine Telegraph Company between Great Britain and Ireland, have advertised notice of application to Parliament in the ensuing session, for an Act of incorporation. The Submarine Telegraph Company between England and France have issued a similar notice. The European and American Printing Telegraph Company (Mr. Jacob Brett, of Hanover-square's patent) and the Magneto-Electric Telegraph Company have also announced the like intention to apply for incorporation, and for power to purchase and use patents.

A FLUE OF FLUES.—In course of operations in the Tamar Silver Lead Mines, on the borders of Devon and Cornwall, it became latterly essential either to erect a powerful steam-engine at the foot of a subterranean inclined plane, 2,000 feet in length, and running right below the river which flows over the mine, to a perpendicular depth of 800 feet below its bed; or, failing that, to shut up the mine and throw 1,500 people out of employment. It was, therefore, determined to adopt the former alternative, and a 20-horse steam-engine, one of the patent combined hydraulic engines from Walker's manufactory at Oliver's-yard, City-road, was accordingly fitted up at that depth. Flues were, of course, requisite, and it was found advisable to conduct these across to the furthest bank of the river, and in a series of horizontal levels united by perpendicular shafts, so that the flue in sections rises like a flight of stairs to the surface. This flue is no less than two miles long and upwards, probably the longest flue in the world. The result was quite successful, as will appear from the following statement:—"We drew through Spurgin's shaft in October month 2,988 kibbles of stuff with Walker's new underground engine: this machine is well constructed, and I have every reason to believe she will pump the shaft 150 fathoms deeper than it is at the present time. We have in these mines six steam-engines at work at the surface, but the draught of the underground engine exceeds the whole. The consumption of coals is 5 cwt. in the twenty-four hours."

THE IRON TRADE is still in *statu quo*, and we need only refer for particulars to our last report on "the beginning of the end," the truth of which has been rather singularly confirmed within the last ten days by the fact that a Welsh paper in the trade interest, the *Carmarthen Journal*, pays us the compliment of adopting it in the slump as its own view of the present state and prospects of the trade, while a Birmingham contemporary quotes it honourably from the Welsh, in corroboration of its despondent views. The latter is of opinion that "a united and determined effort on the part of the ironmasters as a body,

might go far to disarm the struggle, and to place the trade in a more healthy condition; but unfortunately an opposite disposition seems to prevail both here and elsewhere." That is precisely what we reprobated. But we fear that where some *must* go to the wall in order that others may live, it is no easy matter to act in concert, unless it be to draw lots for the casting of the poor Jonahs overboard. Exhibition castings, a mere morsel among so many hungry mouths, are absolutely almost all that the trade at large has at present to boast of in the shape of full employment. "The make, therefore, *must* be reduced, and if competition is about to decide to what extent this reduction will be carried in each locality, the result must be ruinous indeed."

IMPROVEMENT IN LIGHTHOUSE APPARATUS.—We understand that the Royal Scottish Society of Arts have awarded their highest prize, the "Keith Premium," value thirty guineas, to Mr. Thomas Stevenson, civil engineer, for his improvements in lighthouse apparatus. The name "holophotal" has been applied to his system.—*Edinburgh Register*.

ENGLISH COPPER IN METALLIC MASSES.—North Wales appears to be envious of the renown of North America for immense conglomerates of metallic copper, and determined to vie with them. At a new mine (the Graft-naut) near Harlech, N. W., a fine lode of solid copper, 3 feet wide, has been discovered at various points on the surface to the distance of several hundreds of yards, and latterly in the deep adit level in course of excavation, and at a depth of about 20 fathoms! The mine is in the hands of a small company.

DRAINAGE PLANS FOR BANGOR.—In reply to the invitation from the local Board of Health to submit tenders for the survey and mapping of the borough of Bangor, thirty tenders were received, varying from 50*l.* to 500*l.* At a meeting last week, after about an hour and a half's consultation as to the merits of the different candidates, the votes were taken by the chairman, when the unanimous decision was in favour of Mr. E. Johnson, civil engineer, whose tender was 150*l.*

RELIC OF THE CRUSADES.—Ascertaining that there was a stone fragment (which had been found some years ago in Francis-court, situated a few yards south of St. John's Gate) existing in a comparatively modern wall close by, I procured possession of it; and after having removed many coats of paint, I discovered that it was of Caen-stone, and had originally formed part of a Norman building: deeply-cut zig-zag mouldings are upon the fragment, having foliage and *escallop shells* alternately placed and boldly sculptured. Norman remains are often brought to light, and their usual characteristics well known; but the interest attached to the present relic consists in its being a part of the Priory founded in 1100; and this supposition may be inferred from the following: first, that previously to 1381, when St. John's Priory was destroyed by Wat Tyler, its buildings extended southward beyond the present gate; and, secondly, that *escallop shells* were assumed during the crusades, or after the return of the crusaders, in commemoration of these expeditions.

W. P. GRIFFITH.

#### TENDERS

For St. James's Baths, London; Mr. P. P. Roly, engineer. Quantities taken out by Mr. Balam and Mr. Wright. As delivered June 11, 1850.—

Jefferys .....	£8,870
Paul .....	8,700
Walker and Soper .....	8,499
Pollock and McLennan .....	8,488
Higgs .....	8,470
Piper .....	8,237
Winsland and Holland .....	8,194
Hayward and Nixon .....	8,000
Curtis .....	7,894
Cooper, H. W. ....	7,932
Sanders and Woolcott .....	7,892
Myers .....	7,847
Burton, T. ....	7,839
Trego (accepted) .....	7,267

As delivered November 20, 1850, in consequence of a further application from the Commissioners to have fresh tenders for the same work, the previously accepted tender being dispensed with:

Pilleam .....	£8,569
Seal and Jackson .....	8,031
Higgs .....	7,983
Sanders and Woolcott .....	7,892
Burton .....	7,839
Pollock and McLennan .....	7,830
Myers .....	7,747
Cooper, H. W. ....	7,632

\* Bradbury and Evans, Bouverie-street.







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# The Builder.

No. CCCCVIII.

SATURDAY, NOVEMBER 30, 1850.

**A**T the end of last week we went to Edinburgh, on the part of certain commissioners in Jamaica, to examine some iron suspension-bridges which are being constructed for them by Messrs. Dredge and Stephenson,\* and were glad to observe an increasing interest felt there in architectural and other artistic matters. The works now going on are not very numerous, but all that is attempted the inhabitants seem to keep their eyes open, and are evidently wishful that whatever be done should add to the attractiveness of their beautiful city. This feeling is likely to be fostered by the establishment of the "Architectural Institute of Scotland," while that event is itself an evidence of present progress. We informed our readers some time ago of the endeavours that had been made to organise this institution, and of the comparative success that had attended them. Before our present number is issued the Institute of Scotland will have held its first annual general meeting. The report of the council, which is now before us, shows that the first difficulty that met them was the subdivision of the Institute into various classes of membership; and that they ultimately adopted the following five, each class being amenable to its own special bye-laws, in addition to the general laws of the Institute, viz. :—

"Fellows of the Institute, to which architects alone shall be eligible. Associate-Builders of the Institute, to which builders alone shall be eligible. Associate-Draftsmen of the Institute, to which architectural draftsmen, who have been seven years in an architect's office, shall alone be eligible. Ordinary Members of the Institute, comprehending all members not eligible to any of the classes previously enumerated. And Honorary Members of the Institute, being foreigners, upon whom the Institute shall confer honorary membership in respect of their professional attainments."†

There are already about 200 members, 37 of whom are fellows, or pure architects. They have appointed a local committee in Glasgow for the purpose of promoting the objects of the Institute in that city.‡

\* These bridges are to be erected at Trelawny. The span of one is 164 feet, and the width 24 feet. The foundations are to be formed with Mitchell's screw piles. Mr. Dayney Walsh, of Kingston, is the commissioners' architect.

† The bye-laws applicable to fellows of the Institute are—1. A fellow of the Institute shall not engage in the execution, valuation, or estimation of any works undertaken, or proposed to be undertaken, by any building-artificer or tradesman, except such works as are proposed to be executed, or have been executed, under the member's own designs or directions; excepting also cases in which an arbiter or referee he may find it proper or necessary for his own guidance and satisfaction to make such measurement, valuation, or estimation. 2. He shall not accept any pecuniary or other consideration or acknowledgment from any builder or other tradesman whose works he may have been engaged to superintend. 3. He shall have no interest nor participation in any trade contract, or the supplying of materials for any works executed under his superintendence or direction. 4. He shall not permit any of his office clerks, clerks of works, or others of his assistants, to accept any pecuniary or other consideration from any tradesman, nor allow his said assistants to participate, directly or indirectly, in any contract, or the supplying of materials for any works executed under his control or superintendence. The bye-laws applicable to associate-builders of the Institute, are—1. An associate-builder of the Institute shall not in any way discharge the professional duties of an architect; and 2. He shall not employ any draftsman or clerk in an architect's office to make out for him any designs or drawings without the consent of the architect in whose office such draftsman or clerk is employed.

‡ This consists of the following gentlemen:—Messrs. James Smith, James Salmon, J. P. Roched, John Burnett, James Brown, William Clarke, and Charles Wilson.

In concluding their report, the council\* say—"They are persuaded that in architecture—an art at once historical and creative, rich in resources, and ever responsive to the varying habits and increasing wants of civilized life—there is no inherent finality; and that while a miscellaneous criticism may have its advantages in deterring the unskilful, and in repressing what is faulty or extravagant, it is only by the enlightened combination of well-qualified and competent minds in every department of architectural knowledge, that this science, in which, pre-eminently, the artistic and the practical are combined in equal and mutual dependence, can be carried out progressively to its highest and happiest results."

We were sorry to hear, but not surprised, because it has usually been so, that the four architects of highest standing in Edinburgh, Messrs. Playfair, Graham, Hamilton, and Bryce, have refused to join the body. It is to be hoped, however, now that the scheme has taken a good shape, that they will give, if not their co-operation, at least their names: they owe this to their professional brethren and their art.

Since our last visit to Edinburgh, when we described the buildings then going on,† the Free-church College, erected from the designs of Mr. Playfair, has made considerable progress towards completion. The church attached to it has been opened for service. It is in one span inside, and has an open timber roof wanting in the true expression of Gothic architecture. The whole of the building externally is of the last period of the Pointed style, and is smooth and tame. The centre is marked by two square towers (with the gateway between them), and the church has a third tower. The inner quadrangle has a very picturesque feature in the shape of a lofty flight of steps at the back, between the approaching sides of the building, leading directly up to the spire of the Assembly Hall, which, by the way, is decidedly the best piece of modern Gothic in Edinburgh. Seen from the new town, this spire comes into the composition of the college and improves the effect.

The view from the front of the college is very beautiful. On the right is the Calton-hill, with its heap of monuments (the Prison, Burns's Monument, the High School, and others); before you is the Scott Monument, and the Royal Institution; further on the Princes-street-gardens, stretching round to St. George's Church, with its St. Paul's-like dome, and terminating, on the extreme left, with Edinburgh's historic castle.

It is in the space which occurs between the Free College and the Royal Institution that the new National Gallery is to be built. The first stone, laid some time ago, is cased up, and the works are suspended. If the people of Edinburgh thought as we do, they would never be re-commenced. A better site might surely be found without difficulty. The ground, some of our readers will remember, slopes steeply from the college down to the Royal Institution, and to afford a site for the gallery on the level of the latter building it was necessary to excavate deeply. Unless,

\* The council consists of Mr. C. Baillie, advocate; Mr. J. T. Gordon, sheriff of the county of Edinburgh; the Rev. Dr. Grant; Mr. T. Grainger, C.E.; Mr. D. R. Hay; Mr. Cosmo Innes, sheriff of Elgin and Nairn; Lieut. Col. McNiven; Mr. A. Macdonochie, of Mendowbank; the Very Rev. E. B. Ramsay; Mr. D. Rhind, architect; Mr. J. Robertson; and Mr. G. Smith, architect. The honorary secretary is Mr. William A. Parker; and the hon. sec. for professional correspondence, Mr. J. Dick Peddie, architect.

† See Vol. VI. pp. 325, 349, &c. &c.

‡ The Scott Monument seems out of upright. Is this effect produced by the varying levels of the land adjacent, or has the ground on which it stands yielded? It is very desirable that this should be ascertained.

therefore, the existing roadway be levelled, which could scarcely be done without the introduction of flights of steps and the abandonment of horse traffic there, the building will be buried. The gallery will have the effect, too, of further filling up the valley that separates the two portions of the city, which, in a picturesque point of view, is not by any means to be desired.

Terrace walls, of Gothic character, are about to be erected around the level plateau on which the Scott Monument stands, and with flights of steps down to the Princes-street Gardens; hereafter, on the death of an annuitant, a fountain will be added to the adornment of the enclosure.

The National Monument on Calton-hill remains in its unfinished state; the attempt to raise sufficient money for its completion by 51 shares, mooted some time since, having failed.\*

One of the most important pieces of construction recently executed in the city is the chimney of the Edinburgh gas works, which rises to the height of 341 feet 6 inches, and has cost no less than 5,000*l*. It was designed by Mr. Taylor, the engineer of the works. The contractors for the mason-work of the stone pedestal were Messrs. Gowan, and for the brick-work of the stack Messrs. Bow, of Glasgow. Before the erection, Mr. George Buchanan was called into council, and numerous experiments made, a relation of which the latter gave at a meeting of the Scottish Society of Arts on the 11th inst. A question arose how far the ordinary brick could withstand the pressure arising from so lofty a column. This difficulty was provided for by the increasing thickness of the walls of the chimney from the top towards the bottom, whereby the incumbent pressure being distributed over a larger and larger surface in descending, was diminished in proportion. The whole height, from the foundation to the top, is, as we said, 341½ feet; of this, 77½ feet are occupied by the foundation and square pedestal of stone, and 264 by the brick-work, the thickness of which is diminished towards the top by five successive steps. The upper division extends 83 feet down, and is 15 inches thick, and the internal diameter 11 feet 4 inches at top—the second division 58 feet, and 20 inches thick—the third, 48 feet and 25 inches—the fourth, 40 feet and 30 inches—and the fifth, 35 feet and 35 inches thick, and internal diameter 20 feet. On calculating the weight and pressure on each of these divisions, on the first it was found not to exceed 4½ tons on each square foot; in the middle it increased to 7 tons, and at the base it increased to 8 tons on each square foot. The strength of ordinary brick being estimated at from 20 to 30 tons, the work seemed within the limits of safety; but on finding that a composition brick could be obtained in the neighbourhood, from the brick works of Mr. Livingstone, of Joppa, of much superior strength, somewhat similar to those of St. Rollox, experiments were made

\* A writer in the last number of the *Edinburgh Courier*, wherein a series of papers on the architecture of Edinburgh has been commenced (a good sign of rising interest in such matters), says—"It is not unusual to hear it remarked of the National Monument, that it is so beautiful in its present state, it would be a pity to finish it. Such an opinion can only be founded on ignorance of the intended nature of the building. Those who hold it would be at once converted, could they but see the model on which the National Monument is designed. Ruined as it is, the Parthenon still shows the complete Doric order in one of its porticoes and pediments. The columns are there seen with their complete entablature, giving them the appearance of having a superincumbent mass suited to their dimensions. The rise of the pediment above them gives full dignity of effect to the building, and the wall behind the columns gives at once the effect of repose which constitutes the special charm of Greek architecture, and a surface for the complete play of the shadows of the columns, without which their delicacy of shading and their refinement of effect cannot be seen. The ruined Parthenon has a grandeur and majesty which cannot be described."



on their strength: the first specimen tried bore at the rate of 440 tons to the square foot, a degree of strength almost incredible in such material. The results of the other experiments were somewhat similar, and all such as to set at rest any fears of the result. In regard to the sufficiency of the foundation itself, although this sustains the whole mass of the building, amounting to 4,000 tons, yet, the weight being spread over the entire area of the solid base, 40 feet square, it does not exceed two tons and a half to the square foot.\*

The British Linen Company's Bank, in St. Andrew's-square, is a striking work, notwithstanding objections urged against it in a former page,† and others which occur. A high basement carries six large Corinthian columns, which stand, detached, several feet before the front of the two upper stories, and support six statues. A very fully enriched entablature breaks round the columns, and a level balustrade behind the statues, in a line with the face of the front wall below, terminates the composition. Tried by that canon of art which requires for ornamental enrichment a foundation of usefulness, these columns would of course be condemned. The front, moreover, has a fragmentary effect, seeming rather to be a part of a larger building than a complete structure. In the heads of the windows there are busts and insignia; and the frieze, over each column, contains a sculptured figure.

The interior displays the same amount of richness, and will doubtless be very effective when completed. It presents Corinthian columns and pilasters of polished Peterhead granite, a domical light in centre of ceiling, and very elaborate plaster enrichments. There is an attic above the order ornamented with swags of large flowers, and panels filled with busts and figures in high relief. The whole is paved with encaustic tiles in handsome patterns. The capitals of the columns and pilasters are of cast zinc, bronzed. The pilasters, by the way, might have a better outline: they diminish too much. The frieze of the order is nicely modelled.

The new College of Physicians, Mr. Robert Hamilton, architect, has a handsome staircase: the ironwork is gilt. The marbling and veining of the walls and columns, and the decorations generally, are very good. The meeting-hall has columns, and a very ornate ceiling:—much bolder ornamentation, by the way, is now practised by the Scotch architects than in London.

A new hospital (Stewart's) has been added to the number that already exist in Edinburgh and its suburbs. A citizen named Stewart left 13,000*l.* and some house property, several years ago, to accumulate, to build and endow a hospital for boys of poor but respectable parents. The building is now in course of erection, not far from the Dean Bridge, under the direction of Mr. Rhind, architect. The style adopted by the architect is a mixture of the Scotch castellated dwelling with that of the last period of domestic Gothic. The central

\* As to the form of the chimney, Mr. Buchanan said, (as we all know) that in the case of an altitude from 300 to 400 feet, the round form is decidedly to be preferred, as presenting a less effective surface to the wind, whose violent action in this quarter it is important to diminish, by every means. The effect of the wind on a cylindrical surface as compared with a square has been calculated by theory in the ratio of two to three. This is the law of resistance so beautifully demonstrated by the commentators on Newton's Principia. Science expressed here proved the effect on the globe and cylinder to be, if anything, rather less than theory, so that we are quite safe in taking it at two-thirds: the result is that with 300 tons, for example, acting on a square tower, we have only 200 on the cylinder of the same diameter. The bricks, also, by being moulded to the circle, can be built and bound together with all the strength of the arch. On the lower part of the building, which is less exposed, and to be built of stone, the square and pedestal form are preferable.

† See page 415, ante.

tower has the small outsailing turrets at the angles common in Scotch buildings: the windows are square-headed, divided by mullions and transoms, and the heads of lights are segmental. The towers at the outer angles of the building are disfigured by a small pepper-caster turret on each, fit only to hold a bell on a stable building. The entrance-front has a projecting wing on each side, forming three sides of a square, and the area within is to be inclosed on the fourth side by an arched screen, which will stretch from wing to wing. The material used is Binny stone. The contractor is Mr. Hutchison. It is to be regretted that the Scotch architects should mainly adopt the style of the debased period of Gothic architecture for their buildings. With Pointed architecture in its integrity and purity they seem to fear to cope.

Another hospital will be added before long in accordance with the will of a Mr. Chalmers, a plumber, who left 30,000*l.* some time ago to build and endow a hospital for "the sick and hurt."

We described Donaldson's Hospital (also in the Mixed style), with its forest of turrets and vanes, in our previous notice of Edinburgh. It is now completed, with the exception of the ground-work and terrace-walls. The external enclosure next the road consists of a long series of stone piers, rising from a continued plinth, with cornice and obelisk termination, the spaces between them being filled in with a plain iron railing.

The interior of the building does not exhibit any large proportions or architectural elegance, simply, perhaps, because none were required. The boys' dinner-hall is 75 feet by 23 feet, and has a panelled ceiling, grained oak, but it is low and without pretence. There are thirty bed-rooms, which would each hold twelve beds. The chapel, a parallelogram, about 90 feet by 40 feet, has also a panelled ceiling, and is also low. In its present unfinished state the echo is such that no speaker would be audible. To what extent this may be cured by matting, curtains, and the congregation, we are unable to say. It is lighted by a series of windows on each side, filled with stained glass (in patterns) by Mr. Ballantyne, and has an oriel at the extreme end, the lights of which contain representations of the Evangelists and the Virtues, by the same able artist, which would have more brilliancy and sparkle if they had more white glass.

On this building, which is to lodge and educate 300 poor boys, the sum of 140,000*l.* has been expended. A fine monument has been formed—an additional attraction for strangers to Edinburgh, already so rich in attractions; but it is scarcely possible to avoid contrasting the object attained with the size of the structure and consequent expenditure. The interest of 140,000*l.* at 5 per cent. is 7,000*l.* per annum!

Over the entrance doorway is cut the name of the founder, "James Donaldson," and on a panel above that, the name of the distinguished architect of the building, "Edw. J. Playfair." The directors have further shown their sense of Mr. Playfair's merits by placing his portrait by Sir J. Watson Gordon in the council-room with those of the founder and his family.\*

At Greenside, where the Roman Catholics have a convent and bishop's residence, a cathedral and college for parties of the same persuasion are to be built—the former from a design by Mr. Pugin; the latter from a design by

\* Donaldson was born Dec. 1761, and died Oct. 1830.

Mr. Gillespie Graham. The cathedral, we are informed, is to be 350 feet long, and to have a spire 380 feet high. The two buildings are to be connected. The funds required for the erection are said to be 400,000*l.*, more than half of which has already been obtained through large donations and bequests.

In the same quarter, at a place called Lochrin, public slaughter-houses are to be built shortly. These will take the place of sixty slaughter-houses now scattered over the city, and will include a market for skins. The site is arranged for, but the plans are not yet settled: the commission, however, will probably be entrusted to Mr. Cousins, the city architect.

There would seem to be plenty of work in Edinburgh for the sanitary reformer. Some of the numerous courts and lanes, expressively called *Closes*, opening out of the old streets, seem expressly adapted for the production and spread of pestilence: they are retorts, that distil crime, degradation, disease, and death, and should be swept away, or at all events remodelled, forthwith, at any cost. The inhabitants have a city they may be with reason proud of, and should lose no opportunity to remove the blots that disfigure it.

#### "NATURAL STYLE" IN MODERN ENGLAND AND AMERICA.

THE very novel view of the "Copyism" question taken last week by Mr. Kerr, led me to anticipate the pleasure of reading to-day the observations it might suggest to your other correspondents, but as none have appeared, perhaps you will allow me (as a humble fellow-labourer in the same cause) to point out, what appear to me, one or two errors in the writer's present position,—one of them, if I mistake not, of some importance.

First, then, but not chiefly, permit me to suggest (merely as a matter of taste) that the gratulatory matter, which forms the main bulk of the manifesto, would have improved by keeping, and have come with better effect *after* than *before* the deeds we promise. I am aware, indeed, that in this he truly follows the maxim of the day, which is to bark *before* we bite; yet I cannot but think that our cause would eventually be better served by a reversal of this rule, and I hope my solicitude for its interests will be an excuse for this suggestion.

It was easily seen (before he told us so) that Newleaf had taken a leaf out of brother Jonathan's book; and that the transatlantic freedom of speech had caught his fancy, and passed with him (as it does with all of us at first) for freedom of thought; but depend on it he will yet come to distinguish these two kinds of liberty, and to see that they are not always proportional. All are freer than ourselves in something; even the Czar's subjects, in access to his palaces. So it is, too, in the world of thought. There are more kinds of freedom and thralldom in it than are dreamt of in Jonathan's philosophy, or ours either. Friend Newleaf has assumed that we have less freedom than these inhabitants of a land without a history; but he will, on further consideration, see that their "freedom of thought" is freedom indeed—from some of the most precious veins of thought, from the due exercise of some of the highest faculties,—that we are, after all, freer than the east or the west,—and if he inquire *why*, he will yet find that *precedent*, the object of his wrath,—precedent itself, is the great enfranchiser. The easterns lock up, neglect, or abuse their precedent (much as we do in architecture), and the westerns have none of their own, and affect to scorn that of others. Our friend would really seem to forget his own maxim, that "we are the true ancients," and to wish us now to throw away the advantages of age, and begin the world anew.

Nor can I agree with him, when, having heard of "flippancy and self-conceit" in our ranks, he would like "not a whit less" for I do not find any instance of an object similar to ours having received any aid from the exercise of these qualities, but rather hindrance



However, I am reverting to precedent: I beg pardon. But, with regard to the mountain-stream which is proposed for our imitation, I cannot but think it a very unfortunate emblem of freedom, since all the broil and tumult we admire is but the poor thing's vain vapouring after a freedom it has not, and cannot obtain. To my notions, the freer stream is the "father of waters," enriched with the tribute of a hundred such gullies, wandering the plains "at his own sweet will," not just where the rocks oblige him, and through many a wide fertile tract, that laughs to scorn the torrent's poor sterile nook.

But, to the main point: Mr. Kerr thinks, that in the streets of an English or American town that attempts no ornament—no vestige of the "styles of architecture"—we shall see a style appearing—(we shall, indeed, and a perfectly new style, too, but, as I mean to show, not a style of architecture, nor ever capable of becoming one)—a "natural style" he proceeds (I hope to prove it most *unnatural*), "in its elements, at the least, its principles, based on pure construction." There's the point—*pure construction*? Nay, think again, mine ancient. Four letters make all the difference. Look a little closer, good Mr. Newleaf, and say whether you should not, for *pure* construction, have written *sham* construction. Make that little change, and the whole reads right. Based on *sham* construction is the style in question, as its fundamental principle and all pervading rule; from the *sham* plinth that is not the foundation, to the *sham* coping that is not the covering; from the "Flemish bond" without, to the last fittings and furniture within.

If there be any rule essential to this "style," lying at its very root, deeper and more permanent than all fashions, and paramount to all fancies, it is this rule, that *whatever is constructed must appear to be either constructed in a different manner or not constructed at all*. If neighbour Newleaf can find any exception thereto, any one part of this Anglo-American plain building-style, which is both made of what it pretends to be and constructed as it pretends to be, let us take that as a feature towards our "natural" style. But at present having, I confess, discovered no such feature, I conclude, that if the style in question be indeed a natural one, it can only be so where falsehood and deceit are natural—nowhere else.

When our friend referred us to the conventions (against which ancient and even apostolic term I cannot conceive what objection he has) of such Dissenters as are too poor to afford ornaments, he stopped one step short of the mark: if he could but have descended one grade lower, to such as were too poor to afford counterfeits, he might have found what he sought. But, alas! there are none so poor as (that in all her Majesty's dominions, with Yankee-land into the bargain. As in all secular edifices, from the palace and prison (or, rather, prison and palace) down to the "selling-off" shop; so in the temples of all sects, from Rome to Philadelphia, there is not one that, on Anglo-Saxon ground, is either rich enough to afford *realities* in design and construction, or poor enough to dispense with *fictions*; for with our race (but no other at present), ART (i.e., deceit) is far more important than ornament,—is indispensable, even where ornament is not thought of. Pretence there must be, whether *pretension* or no.

Well and pertinently asked one of your correspondents lately,—"which of the styles of architecture was founded on deceit?"—not none: so that if our friend can make one out of the elements he expects, he will not only prove himself a genius, but also prove (which he has not yet done) precedent a liar.

This is far indeed from being the only difference of principle between the styles of old and what which Mr. Newleaf recommends to our study, and which I have long been studying, with a view to eliciting its principles. Perhaps you will allow me to attempt, in another letter, some elucidation of these principles, which will show their perfect *contrariety* to those acknowledged common to the architectural styles, both in this and in other no less important aspects. Indeed, like antipodes, they must be viewed from more points than one, before we see how thoroughly opposite they are. I hope, also, shortly, to prove the impracticability of following Mr. Scott's advice, "to begin where we

left off," for a very simple reason, that seems to have been overlooked by his adversaries, viz., that *we never left off*; but, from the earliest times to the present, have proceeded in one constant direction, along a course that, before the Edwardian era, led to continually increasing truth; and ever since, to continually increasing falsehood; a course unbroken, and, in a certain sense, natural. Whether the result to which it has brought us be (like other styles, and as Mr. Kerr supposes it) natural to, and indicative of, the sympathies and tendencies of the age and nation of its production, we can never know:—I hope and pray Heaven it be not. If I fully believed it were so, I should bear with shame and grief the name of Englishman, and covet greedily any other under the sun, except American.

If Mr. Kerr "for one" can see "that the Gothic churches, one and all, and the Houses of Parliament, with all their grandeur," sink in the estimation of Englishmen beside the "preaching-room of Mr. Pugin's wrath, and the comfortable" arrangements of the bricklayers; I for one can see that John Bull's antipathy is not against the *magnificence* of the former, but against their superfluous and false pretences, their *mimic nature*, and their monotonous repetition of one uniform character (with all their variety of style)—the one broad character of COUNTERFEITS. He is already beginning to let the architects know that if this be all they can give him, he can dispense with their services, and he is quite right. If this be architecture, from architects deliver us, cry I, as heartily as any layman. But good Mr. Bull must likewise be taught that his fancied refuge from them is no refuge,—that if they only give him that,

"Which, look'd on as it is, is naught but shadows  
Of what it is not,"—

the "practical" men give him worse,—shadows of shadows, counterfeits of counterfeits, three or four deep,—that their "*economy*" is but economy of thought,—their "*common sense*" monkey or parrot sense,—their "*simplicity*" that which (as Sir Joshua Reynolds said) sought to evade all the difficulties of art,—their "*comfort*" conformity to an irrational routine,—their "*cheapness*" mere trashiness, costing perpetual repair, and their "*plainness*" odious pretence, more barefaced than that of Greek or Gothic mimicry. Whatever hindrance to true architecture may arise from the old styles (and no doubt there will still be much), our national temperament insures far more from this new one, which I hope Mr. Pugin will not relax in his efforts to expose:—I, for one, wherever I meet with it, "*persequar et impugnabo*," more than Mr. Pugin has done,—in more places and for more reasons. If he have made it a matter of religion, and you a matter of taste, I am resolved to make it a matter of *both*, and more than both. I will attack it not only on Catholic grounds but on Protestant ones too,—not only on grounds of Christian, but also of moral and social faith,—not only in the church and conventicle, but in the dwelling-house, the barrack, the factory, the warehouse, the exhibition-shed, the very stable; and not only because it is *unprecedented*, but because it is *deceitful*; and we have no need of deceit anywhere. I will attack it because it is not one of those things it pretends to be; not natural, not economical, not cheap, not comfortable, not salubrious, not "common sense," not simple, not plain, and not honest.

E. L. GARBETT.

P.S. I observe a suggestion from another of your correspondents, respecting the danger to St. Stephen's, Walbrook, if a fire were to happen in the adjoining house. May I suggest, if not too late, a method of obviating the danger more cheaply than by removing the house, as he proposes. Suppose Wren's design, now that it has become so famous, were, at length, to be (like innumerable foreign ones that deserve it incomparably less), carried out in *real* instead of *sham* construction? Suppose its beautiful arches, entablatures, coffers, vaults, and dome were to be made in reality what they pretend to be. The cost would be less than that of a house in such a locality, and the gem would be safe, not only from its neighbour's kitchen, but from all other sources of fire, and not only from fire, but from decay and periodical patching. The parishioners might also

worship in a church, instead of a sham church, and leave the improvement of the street for "another time."

#### EMPLOYMENT FOR THE THAMES TUNNEL.

AFTER all the high aims and expectations with which it was undertaken—the inexhaustible skill and indomitable courage and perseverance of its engineer—the well-proved energy of its directors—the considerate sympathy and efficient aid of the government—the great outlay involved in its performance—this renowned subaqueous connecting-link of the shores of Middlesex and Surrey is, after all, only a penny pathway for foot-passengers,—with, to be sure, sundry stalls for the sale of stale gingerbread, and a dancing saloon for the *élite* of Rotherhithe and Wapping. With its European fame,—to think of its undeveloped utility! With such noble efforts,—to think of the base uses!

The formation of a tunnel across the bed of the Thames had been a vexed question for at least a quarter of a century before it was in good earnest set about; for its desirableness had become more and more obvious with the increased commercial importance of the opposite counties and their shores, and, so far as passenger traffic was concerned, the increased danger of ferrying on a river becoming more and more crowded with shipping and small craft. It was with anticipations beyond the mere obtaining a substitute for a passenger-bridgeway that the Thames Tunnel was commenced, and that coffers were (in whatever sense of the term) drained in its execution. What pity, then, that its dignity should so dwindle; its utility have such near limits; and its cost be met by so small a recompense.

It is stated that, in the week ending March 31, 1849, the number of persons who passed through was 43,761,—very satisfactory, certainly, as evidence of its usefulness in that way, but which would only bring to the exchequer, in pence, the sum of 182l. 6s. 9d.; and which, multiplied by 52, gives, for a year, 9,431l. 11s.—an amount that, after expenses were paid, would be about two per cent. return on the cost, taking that at no more than 446,000l.

To render the Thames Tunnel more available, it appears that in 1845 (when active minds were very busy), there was a proposition for transforming it into a railway tunnel for connecting the lines north and south of the river; but nothing came out of it, probably either from the plan not being sufficiently matured, or its not having in view the preserving the independence of the tunnel. There is a way, however, in which it could be enhanced as a boon to the neighbourhoods it connects, and at the same time increased in its revenue,—namely, establishing in it a goods-conveyance, on a line of rails, *circulating* in the two channels, one of these being devoted to the southward, and the other to the northward traffic, between the opposite shores; having a pair of lifts in the shaft at either end, worked by hydraulic pressure, or by stationary steam engines of adequate power.

To such a purpose the present termini are capable of easy adaptation: carts with goods would be backed in at the level of the street till the lift was loaded with their contents, and these would be lowered directly upon the trucks: the latter might be either drawn by the engines or by horses: the downward incline in the tunnel, from the ends to the centre, could be overcome by making the rails more nearly, if they could not be altogether, horizontal: if the latter could have a slight *decline* in the direction of the journey so much the better. The body of the truck might be moveable upon its carriage, being a tray of thin iron, and having small wheels and guide-rails, so as when charged at the street level at one end it might be with facility run off sideways on to the lift, lowered, run on the truck-carriage, conveyed through, run on to the other lift, raised, and run off at the street level on loading and unloading be thus much obviated.

The ingress and egress at each end for passengers would, as far down as the mid-landing, continue nearly as at present, but from that level, an open cylindrical iron stair of two spirals—one for those coming, the



other for those going—situated centrally between the two archways, and against the central pier, would be proper, at each end, in order to lead directly to the foot-paths (which are on either side of and against the line of piers), and thus be inside the course of the goods trucks, where they described their semi-circular transit from the one archway into the other.

To maintain communication between the persons operating at the two ends of the tunnel, a telegraphic apparatus, with a brief code of signals, would be expedient and satisfactory.

Such is a brief outline of a simple mode by which I conceive the Thames Tunnel might be rendered available for goods traffic, without waiting for the time when the shafts, 200 feet in diameter, to contain the spiral inclined planes for carriages, should be constructed. By whatever mode such result could be attained, there cannot be two opinions as to the influence which it would exert on the surrounding property on both sides of the river.

JAMES WYLSON.

#### GOSSIP FROM WINDSOR.

##### "FYTTE THE SECOND."

It must not be inferred from the title of the previous paper from the royal borough, that we are without hope of improvement: our readers will be as much interested in hearing of the progress making in adding to the comfort and convenience of the royal residence as they might be in hearing of the destruction rendered necessary in carrying out the necessary alterations; and having rambled with us round the castle and terrace, they will perhaps now take a run through the cloisters and into St. George's Chapel. Considering how poor the rev. gentlemen are who have the care of the chapel, and the small revenue placed at their disposal for the maintenance of themselves and the keeping in good order the costly buildings under their charge, we are not surprised to observe that "charity" has stepped in and set them an example which we trust will be followed out without delay: the beautiful stone screen enclosing the first cloister having become decayed, the families of two late military knights, Colonel Campbell and Major Wathen, have combined together and have restored two of the compartments into which it is divided, contrasting favourably with a very ugly and mean-looking window which has been recently opened into the dean's residence close by: within the chapel itself a great deal has been done within the last few years in embellishments and improvements: both colour and gilding have been called in, in aid of these very praiseworthy objects: a new stained glass window has been erected at the east-end of the south aisle, and the whole of the windows on the south side are now being filled in, in the same manner, and when completed will add very much to the adornment of this celebrated place of worship.

Returning into the town we were much pleased to hear that it is in contemplation to repair and beautify the Town Hall. Mr. Hardwick has been applied to for advice on the subject.

The great work of thoroughly draining the town is now in course of execution, and generally seems, to be well executed; but there is one matter that ought, for the credit of the other contractors who sent in their tenders for the work, to be inquired into. It will be recollected (they were published in *THE BUILDER*) that the tenders varied from 3,550*l.* to upwards of 7,000*l.*, and the specification expressly stated that the lower portion of the main sewer must be built either with Staffordshire or Tamworth bricks or others of equal quality, and that all the bricks must be of the very best description. Now, it is well known that Staffordshire bricks are of the colour and nearly the hardness of cast-iron: no such bricks have been seen about the neighbourhood since the works began; and if the bricks which have been used are of the best description, why it is time we went to school again, for at present we must confess that we are utterly out in our judgment: indeed a very old friend suggests that we know nothing about it, or we should have seen that they are expressly made to take

good hold of the cement! All we can say is, that the item of Staffordshire bricks alone made a difference in one estimate of nearly 1,000*l.*: let us add that the writer does not find fault with the contractor, Mr. Dethick, who is proceeding rapidly and perseveringly with a very difficult job; obstacles, both natural and artificial, having to be surmounted at every step.

Visitors to Windsor must have observed two buildings, very much resembling tobacco boxes, at the entrance to the Long Walk: one has already disappeared, and the other, together with the massive fence and pillars adjoining, is now in course of removal: the materials are to be used in the erection of some new lodges which have just been commenced at the ends of the *long* bridges mentioned in the former paper.

T

#### PALL-MALL AND IMPROVED THOROUGHFARES.

I AM glad to see you keep the attention of the authorities to the expediency of extending the line of Pall-mall westwards, and hail, as a most valuable suggestion, the recommendation contained in your last number, that it should be continued across the north-west angle of Buckingham Palace gardens into Belgrave-square—I presume through Chapel-street.

My object in addressing you is to point out the vast importance of the still further extension of this great arterial avenue across Sloane-street into the Fulham-road, at or about the angle which it makes near the eastern corner of Pelham-crescent.

The Knightsbridge-road has become inadequate to convey the great stream of traffic which pours to and fro between the City and the populous and daily increasing districts of Brompton, Chelsea, and Fulham. Moreover, it is a great and cruel waste of time and labour, both human and equine, to force all passengers between these points to take the roundabout, angular, and hilly route from Waterloo-place up to Piccadilly, and down again from Hyde-park-corner to the lower southern localities, when a nearly straight, level, broad, and magnificent thoroughfare, saving near one-third of the distance, might be so easily constructed along the line I speak of, by continuing Pall-mall to Pelham-crescent. But if this be ever done (and some time or other it will be found absolutely necessary), not a day should be lost in setting about it, as the now or lately open ground across which the road must be formed west of Sloane-street, is being rapidly built up into a maze of short and intricate streets, places, crescents, squares, &c., which will soon completely block up all passage through it, and render the opening of any thorough communication as difficult and expensive as the formation of new and necessary avenues through the denser parts of the metropolis, from similar neglect in early times, has notoriously become. At present the execution of such a valuable outlet to the western traffic of London might be easily accomplished at little cost, under a proper Act for the purpose.

CIVIS.

Another correspondent states, with respect to the desired elongation of Pall-mall, that having "demolished the house at the corner of St. James's-street, and the six houses in Cleveland-row, and the one facing the Green-park," we should find that Lord Ellesmere's house, so far from ranging with the north side of Pall-mall, as represented in the ground plan submitted to Parliament, would stretch about half across the opening, and thus greatly interfere with the realisation of the sylvan vision of "Quondam."—W.

#### ARCHITECTURAL AND RAILWAY MATTERS IN IRELAND.

A NEW Roman Catholic church is about being erected at Rathmines, in the county of Dublin, the foundation stone of which was consecrated a short time since. The old church is being inclosed by the new building, and when the latter is sufficiently advanced, the former will be removed and re-erected at Harold's Cross. The designs have been furnished by Mr. Patrick Byrne, architect. The style is Grecian. In the centre of front elevation is a hexastyle Corinthian portico (with pediment and attic), which extends 67 ft. 8 in.,

and is in height 35 feet to top of column: the entablature is 8 ft. 9 in. high, and the attic parapet 24 ft. 6 in.; total height from ground line to top of attic, 72 feet: acroteria, with statues, to be on centre and angles of pediment. The portico will have niches, with semicircular heads, and architraves in the intercolumns; also French rustics. Wing walls at either side of portico to have antae of a plain character. A door in the centre of portico will be 20 feet high and 9 feet wide. The plan of building is a Greek cross, the length 145 feet, width 45 feet: transepts are of same dimensions. The walls in the interior are to be decorated with Corinthian pilasters, 35 ft. high, at intervals with ornamented entablature, having niches in the intercolumns, and surmounted by a semicircular ceiling panelled and ornamented; height, to springing of arch of niches, 23 feet. At the intersection of the transepts will be a dome 50 feet in diameter, the height to springing of arch being 71 feet; height to top of dome, 95 ft. 3 in., and a light 15 feet in diameter to be set therein. The interior will be panelled, to correspond with ceiling: the transepts are to have Dioclesian windows, 27 feet wide, and 13 feet high; the altar to be inclosed in a space 50 feet square, immediately under dome. Transepts to be entered by two doors in each end. Interior to be grey coat plastered, with all the mouldings and decorations of plaster of Paris; the inner pilasters to be of granite to a height of about 6 feet. The front portico is also to be of granite stone, which is being supplied by Mr. Patrick O'Lagan, of Ballynockin quarry. The cost is estimated at about 15,000*l.*, funds for which are being collected by subscription.

Her Majesty's Board of Ordnance purpose erecting chapel schools at the barracks of the following stations; viz.:—Cork, Clonmel, Kilkenny, Limerick, and Belfast. The plan of the proposed buildings is rectangular. The inside dimensions are 80 feet long by 40 feet wide; walls, 2 feet 3 inches thick. In the centre of front elevation is a lancet-headed door, 4 feet 3 inches wide, and 9 feet high, with label mouldings, and ascending by three steps; over this is a window: at the apex of the gable rises a bell cot, 10 feet 6 inches high, surmounted by a cross; at the angles parallel with the face of the wall are single buttresses, 2 feet wide. In the end elevation is a window divided into three openings, with lancet heads and label mouldings, the centre opening rising above the others: height from ground line to ridge of roof, 39 feet 6 inches; to level of eave-course, 19 feet 6 inches. The side elevation is perforated with nine windows on each side, with buttresses at distances of 25 feet 6 inches. The roof to be of iron; principal rafters of wrought rolled T iron, 4 inches by 1½ inch; the upper part 3 inches by ½ inch, drilled and counter sunk for screws, to secure boarding; the struts ½ inch thick; shoes, sockets, king heads, eave-gutter, ½ inch thick, and twelve plates, 9 inches by 6½ inches thick, closely perforated, to be of cast iron: tie-bars to be 1½ inch wrought round iron. The struts to be 5 inches wide, and chamfered on the arrises, resting on a shoe bolted to the wall-plate. The walls of superstructure to be of random ashler masonry; external faces hammer-dressed, and pointed with cement: quoins, buttresses, plinth, string-course, dressings to windows and doors, and labels, to be of chiseled stone. The probable cost of each building is estimated at about 2,000*l.*

Father Mathew's Church at Cork was opened last month. The interior is not yet quite finished. The walls at each side are pierced by seven tall pointed windows: the glass is dulled. There are three windows at south or entrance end: the one immediately over the principal gate is of larger dimensions than the others. The window in the altar end is 30 feet in height. The body of the church is divided into nave and aisles by two rows of light pillars, with pointed arches supporting the open framed roof. The sanctuary is separated from the body by a light Gothic screen, not quite finished. Mr. W. Atkins is the architect.

A new church is about being erected at Oughterard, and a new school-house for the Irish Church Mission Society is in progress of erection.

The Poor-Law Commissioners are about erecting a new union workhouse at Thomas-



town, County Kilkenny, and have advertised for tenders for same. The plans were prepared by their architect, Mr. Wilkinson.

Several masons are employed in fencing the timber breakwater along the strand at Pilmore, which forms a concave facing the south and east. There are twenty-seven of these structures, at intervals. The works have scarcely any foundation, the stones being merely laid on the sand: the wooden piling outside them is sunk some depth.

The Waterford and Limerick Railway Company are about borrowing on mortgage or bonds a sum necessary for carrying on the works, not exceeding 250,000*l.* The Public Loan Commissioners would advance 120,000*l.* on certain conditions. This company has agreed to the terms of the Exchequer Loan Office, and has entered into an agreement with the Waterford and Kilkenny Company to have the joint use of the station at Waterford, by paying 5 per cent. interest upon one-half of the outlay expended thereon.

A meeting was held lately in Killarney for the purpose of urging Government to come forward and complete the line from Killarney to Mallow, a portion of it having been constructed.

#### NEGLECT OF ARCHITECTURAL ANTIQUITIES IN IRELAND.

It is melancholy to see the ruin and devastation of mediæval remains in Ireland, once so numerous scattered over the face of the island. Scores of them have sunk to a mass of rubbish which have never been illustrated, and which have contained details of remarkable beauty and singularity. Much has been done in England to preserve such memorials, but here they have been left a prey to vulgar ignorance or sordid cupidity: the unlettered peasant, the ignorant squireen, or heartless road-jobber have been permitted to deface, rob, and ruin our most interesting relics: the consequence is, they are fast disappearing from the land; and if the hand of the patriot or the antiquary be not stretched forth to save them, a short period will see the ploughshare driven over many of the few that yet remain.

I have seen a modern tomb built almost entirely from the carved bosses and capitals of the cloister columns: I have seen another constructed of monumental slabs, covered with quaint inscriptions and antique crosses, many of them broken to make them fit in their place.

Lately revisiting the ruined abbey of O'Dorney, in Kerry, I gazed with dismay upon a few mutilated carvings, the relics of what, half a dozen years ago, had been a beautifully-carved altar tomb: on inquiry I found it had been pulled to pieces to make head-stones for graves, —also that a village mason had taken away a portion, which he had converted into a chimney-piece.

Not far from O'Dorney is Rattoo, where formerly stood extensive monastic foundations containing seven churches: a ruined chantry, and a beautiful round tower (perhaps one of the most elegant specimens we have in existence), are all that remain at present.

I cannot here pass by the present ruinous and neglected state of the once glorious cathedral of Ardraf: the arches of the lofty and graceful triplet in the east gable are tumbling down; and the south wall, having separated from the east gable, is fast tending to a fall, and will involve in its ruin the beautiful arcade of ten lancets with their slender shafts, and trefoiled heads, and the elegant remains of its sedilia and piscina. I was informed in the village that the late Bishop of Limerick had collected funds towards its reparation: I hope his successor will not lose sight of the matter.

A few weeks since I visited Buttevant abbey in company with our worthy fellow-townsmen and indefatigable antiquary, Mr. Windele. While pointing out to him its ruinous condition, and the imminently dangerous state of some portion of the abbey, he said, "Well, if you will superintend the reparations, I will try and collect the funds." To this I gladly assented. Mr. Windele, with great perseverance, and at considerable personal trouble, has succeeded in raising a sum which, with a handsome donation from the worthy parish priest of Buttevant, will enable me to make such reparations as will preserve it from the ruin which now threatens it. I mention this instance

to show what may be done by private exertion towards preserving our national monuments: they are sacred legacies bequeathed to us by the holy and self-sacrificing spirits of by-gone days: let us, then, guard with jealous care those decaying memorials of our country's vanished greatness, and may it be our pleasure and our pride to hand them down to posterity with the tokens of our zeal and veneration palpably stamped upon them in careful and judicious reparations.

R. R. B.

#### THE ARTISTICAL IMPROVEMENT OF OUR COSTUME.

THE following declaration is now in course of signature:—

We, the undersigned artists, amateurs, and admirers of the fine arts, and of all that conduces to elevation of style in painting and sculpture, particularly as connected with truthful representations of contemporaneous actions and characters of this eventful era, considering that whatever contributes to the proper display of the human figure, not only on canvass or in marble, but in daily life and action, is essential to the advancement of public taste and of high art, conceive that the confluence of all civilized nations, at the Exhibition to take place in Hyde Park in 1851, will afford an unprecedented opportunity for discussing the general adoption of any improvement that may by them be deemed conducive to these ends,—

Are therefore anxious to draw general attention to the subject of COSTUME; that which is now prevalent in Europe being devoid of all the requisites for dignified historic painting, utterly incongruous with sculpture, and no less unfavourable to the living figure, both as regards appearance and convenience.

Not to dwell on serious evils in regard to health and comfort, arising from deficiency of ready adaptability to the hourly variations of weather, it is remarkable, at this period of advancing taste in architecture, furniture, and decoration of every inanimate object, that little regard is paid to a suitable presence. No costume of which there are any traces was ever so inconsistent with grace, simplicity, and dignity of aspect, none so uselessly complicated, as an European's of the present day. The unity of the figure is frittered away. Stiff lines and angles disguise the body, and an uncouth hat crowns the disfiguration. Groups of men in the ordinary garb gratify no taste but that of caricature: neither painting nor sculpture can advantageously transmit to futurity a faithful representation of any event constituted of such a group. Nor does admixture of female fashions often obviate the difficulty. Family groups of the present date have seldom any charm beyond the kindred circle. To expect from art truthful representations of events in which our contemporaries are engaged in their usual habits is to expect meanness of aspect to express all that is noble. Interesting as such faithful painting and sculpture would certainly be to posterity, they must remain unattempted until dress displays the flowing lines and harmonious colours in which nature and art delight. Historical subjects must continue to be sought in remote periods, and to exemplify chiefly the imagination of the artist: genuine scenes of great interest will remain unknown in this high department of art.

The cause of truth—the interests of our own times—and the satisfaction of posterity—alike require the removal of such an impediment to artistic faithfulness.

We, therefore, invite from all countries examples of the best style of dress, both male and female, combining dignity, simplicity, elegance, comfort, and convenience, with a special regard to artistic representation, and to the employment of the various fabrics now in use, or that can be introduced.

Let it not be supposed that any sudden or extravagant departure from existing modes is requisite, nor fixed forms precluding the display of individual taste and fancy; still less any sumptuary regulation. What we suggest to designers and makers of every article of dress is, in availing themselves of the decisions published by her Majesty's Commissioners as to some of the objects which may be admitted to the Exhibition under section 3, viz. "hats" and "garments"—and under section 4,

"models" in any kind of material" (the conditions being that they shall exhibit "increased usefulness or improved forms,"—"beauty of design"—and "such a degree of taste as to come under the denomination of fine art") to exhibit at the approaching most favourable opportunity such forms as may afford a series of *transitional* changes (to which the public already evince a decided tendency) from the present fashion to a style consistent with the foregoing views and the advanced tastes of the age.

We further express our hope that every European Court may concur in the adoption of a costume possessing the advantages we have enumerated, and capable of being modified in accordance with the seasons, the climate, and the circumstances of each country.

Signed—E. H. Bailey, R.A.; H. W. Pickers-gill, R.A.; J. P. Knight, R.A.; C. R. Leslie, R.A.; C. Landseer, R.A.; D. Roberts, R.A.; Ab. Cooper, R.A.; P. MacDowell, R.A.; R. Thorburn, R.A.; W. C. Ross, R.A.; W. F. Witherington, R.A.; J. Hollins, A.R.A.; J. D. Harding, R.R. Reinagle; R. Westmacott, R.A.; John Wichele; W. Calder Marshall, A.R.A.; Geo. Godwin; Wm. H. Davis; A. J. Stohard; C. W. Cope, R.A.; W. J. Donthorn; G. R. Ward; Tom Taylor; R. Rawlinson, C.E.; T. H. Moody; T. Y. Harlestone; E. Havell, jun.; Ambrosini Jérôme; Fra. Graham Moon (ald.); H. T. Ryall; Leonard Lewis; Cornelius Durham; W. Gale; T. Clater, &c. &c.

#### THE METROPOLITAN COMMITTEES FOR THE '51 EXHIBITION.

In accordance with suggestions from the Royal Commissioners, it has been determined by an aggregate meeting of the local commissioners to consider the metropolis henceforth as a "unity," so far as regards the allotment of space to exhibitors; and to divide the local commissioners, without further regard to districts, into committees of specialties. This was obviously the only course to be pursued. There are nearly 300 local commissioners; so that thirty committees of, say ten each, for thirty classes of subjects, would include them all. Each committee is to appoint a chairman and deputy-chairman. The committee are to have the selection and rejection of articles, with an appeal, in case of dispute, to the whole of the chairmen of the committees.

A classification of the local commissioners was sent from head-quarters, and has since been altered by the City committee, in opposition, it would seem, to the Westminster committee. Antagonism must be avoided;—all must pull together.

We do not think either list would be quite satisfactory,—the amended list least so. In making the classification, it seemed natural to put under each head those who knew most about that particular matter. In practice, however, this will not work well. Take, for example, class xxvi. in the amended list, "Working in Precious Metals, &c.:" the committee named are Mr. Garrard, Mr. Gray, Mr. J. Hunt, and Mr. Oram, all men acquainted, technically, with the subject; but then they will probably all be exhibitors of the same sort of work, and are the rivals, or at all events will be regarded as such by other candidates for space. For papier maché, under class "Decoration," only Mr. Bettridge is named, and for paper-hangings Messrs. Clarke, Haselden, Horne, Hubert, and Simpson, all, if we mistake not, manufacturers and intending exhibitors. The names must be shuffled about a bit, or the "committee of appeal" will have a great deal to do. With good feeling and earnest desire to reconcile differences, however, all the difficulties may be overcome. The committees, be they formed as they may, will have to work, and must prepare to be abused.

A GREAT GLOBE is in course of construction by Mr. Wyld. It will be 56 feet in diameter, and framed on zinc ribs, each circle in four compartments, socketed together with copper. The surface will represent in relief the natural mountains, elevations, and streams. It will contain galleries and staircase for visitors. It has been stated that it will be put up in the Hyde-park buildings, but this will not be the case. A negotiation is on foot to obtain the area of Leicester-square for its erection.



THE CHAPEL OF ST. CROSS, HAMPSHIRE.  
(NORTH-WEST VIEW.)





## SCHOOLS AT CROFT, HEREFORDSHIRE.

MR. MOUNTFORT, ARCHITECT.

THE CHAPEL OF ST. CROSS,  
HAMPSHIRE.

We some time ago called the attention of our readers to the many fine specimens of Ecclesiastical Architecture to be met with on the South-Western line of railway, and we now give an illustration of the Chapel to the Hospital of St. Cross, near Winchester.

There is no place throughout England that carries with it such an air of antiquity: a very slight effort of the imagination takes you back to those days when buildings devoted to like purposes were to be found in all parts of the land. Now, if we mistake not, this is the only one of any importance remaining, and it still bears about it many evidences of its ancient origin. The brothers continue to wear the black gown with its cross of silver: beer and bread are still given from the gateway to any wayfarer who may stand in need of such help: indeed, most of the old customs are here retained, and as a consequence the place is full of interest. The hospital is beautifully situated, the buildings occupy three sides of a quadrangle, the fourth side is open to the country, thereby rendering the place more cheerful than it would have been had the square been quite inclosed. The gateway, hall, and kitchen are on the north side, all excellent specimens of perpendicular work. The houses occupied by the brotherhood are on the west side; the chapel and cloister on the east; turf, with flower beds, and nicely kept walks, occupy the open space. Altogether it would be difficult to name a more interesting spot. A residence here should be, and we believe is, considered a great boon.

Our illustration is a north-west view of the chapel. Many views of this building have been given, but these principally illustrate the early work of the twelfth century, while in the present view nearly all the work is of a later date. It is an excellent specimen of the period with much valuable and interesting detail about it. We are sorry to add that the interior of the chapel is not so well cared for as it should be. The present master of the hospital (the Earl of Guildford) seems to be of opinion that in affording a very liberal supply of white-wash he is doing every thing that can be requisite.

In the proceedings of the Archaeological As-

sociation, and of the Archaeological Institute for 1845, will be found a detailed account of this interesting building.

## SCHOOLS AT CROFT, HEREFORDSHIRE.

The accompanying engraving shows the south-west view of schools for boys and girls lately erected at Croft, Herefordshire, for William Kevil Davis, Esq., from the designs of Mr. W. B. Mountfort. The building is of a good sandstone: the roofs are open.

SUPPLY MAINS OF LONDON—WATER  
AND GAS.

Our streets broken up in every direction, retarding the traffic of the commercial world, and obstructing the "roulage" of omnibuses and other conveyances, appear to most people to be an inexplicable puzzle, or the result of insensate mismanagement.

No sooner is a pavement laid in concrete, and the way seemingly plain and permanent for years to come, than bands of navigators take possession of the tessellated granite, wedge, pick, and delve the almost adamant crust, and sink trenches for new rills of water or volumes of gas. The new filled earth takes time to settle; meanwhile the diverted traffic wears the portion unbroken and constricted to one line of wheels, and by the time the pavement is relaid the whole width of the street is a series of ruts and prominent blocks. Such is the mode of management, and such the cause of the excessively high charge levied on the citizens for paving.

Should any new system be adopted for distributing the water supply of the metropolis, and the old iron pipes be dispensed with in favour of a new reticulation,—why all London must be subverted "*ab infimo imo*," and all the concerns of trade and free intercommunication be paralyzed. Whatever theory may be adopted (and there are many afloat besides the water gathering from the Downe), there is no reason why the old and tried conduits should not be made available, because no other general supply can be introduced without altogether superseding the former faulty, insufficient, and impure provision.

There can be no doubt but that the original

springs on high ranges, such as the Hindhead, Bagshot, Farnham, Leith-hill, &c., are, in the first spring from the soil, the most pure; but it is far from clear that the rain-water percolating from these heights, and caught up by drains or pipes, could be equally so. At a very short distance (a quarter of a mile) from their sources, the several streams flowing from them are tainted with peat and vegetable decay, and they are, in fact, at that distance, *bog* water, which is only purified by its current progress through sandy soils, and by aeration: and it is equally certain that the cost of collecting these waters would be extravagantly large—not to speak of the difficulty, injustice, and expense of their diversion.

If a region of 400 square miles of country be desiccated, what is to requite the inhabitants for the loss, as a source of utility, for their flocks, their mills, for irrigation, or even for the adornment of the landscape? How many gentlemen's seats must be bereft of the second feature of beauty in landscape—the rivulet? A ramble down the devious "Wey" or "Tillingbourne" brook will elucidate this. But, after all, for what? For the purveying of water to London, which, in the end, will require filtration, or purification by some other means.

To refer now to a plan put forward through THE BUILDER for the profuse supply of London with good water (incomparably better than any but the Lee) would perhaps be useless; but as it is trite, and easy, and affluent, we may as well repeat it. Staines is but fifteen miles from London, yet it is above thirty by water-way, and over twenty above tidal influence: the river is at that point as pure as the rivulets before referred to, and a sufficiency could thence be spared for drink, for washing, flushing of sewers, and even fountains. One 6-foot tube would carry as much as all the present supplies, and that tube might be laid in the high road (nearly a straight line) without cost save that of laying down. Such a cylinder might be cast in halves, with flanges to bolt together (thus reducing the expense of carriage), and covered with gutta percha, or some other impervious substance, or the pipes might be multiplied to four tubes of 3 feet, carrying as much as one of 6 feet diameter, and as to a natural fall for the supply of high



localities, that object could be obtained by propulsion through the agency of steam: the artificial supplies the place of the natural in hydraulics, for all the existing companies use none other.

Such being the case, the agency of a natural fall to the capital which might be adequate to serve the highest houses, is, according to all antecedent practice, supererogatory.

The plans of the Bushey artesian supply contemplated a natural fall; so also did the colossal project of the engineer who proposed to withdraw the waters of Lake Bala from North Wales. This latter would be certainly a most formidable undertaking,—first, on account of its length (150 miles), and the obstacles that should be overcome in the transit,—next the expense of practication; but when we compare the vast works of the Croton aqueduct, and the fact that the city of New York containing 500,000 inhabitants achieved it, there is little difficulty in supposing that a metropolis that commands the trade of the world, which has the control of the funds, the material, and the labour essential to the perfection of such a scheme, could carry out the object. As yet no other source of perfectly pure water has been set forth in any scheme. Whatever merit is attached to the Bushey plan (despite its hardness), it certainly has not the recommendation of source that is certain and inexhaustible; whereas that from Bala presents every requisite which can be desired—a superabundant supply of the purest quality, and such as no other district of great Britain offers. The lake is fed by lofty mountains of rocky structure (chiefly slate): it passes through few, if any, morasses or bogs; whilst the soil of Bagshot, Little Hill, and the Hindhead, are of a sandy nature, covered with heather and peat, over which the search for water (even after rain falls) would be as fruitless as in the dry diggings of California during the dry season.

Some time since *THE BUILDER* noticed a general plan of sewers for the metropolis, which should combine all the underground conduits in one great leading main. That plan I heard proposed by Mr. Moffett many years back, and originated, I believe, with him: it was to form in every street a central tunnel, through which the sewage might take the bottom range (to be divided from the surface water) next the water of life, and the gas to be conducted along the roof, leaving room for the electric telegraph, or any other subtle element of nature that may be as yet undeveloped, and which may stand over for the ingenuity of unborn philosophers.

This plan, if ever carried into execution, will certainly obviate the necessity for ripping up, re-paving, and re-ripping the causeways, but cannot be carried out during the Metropolitan (or rather Metro-cosmopolitan) Fair of 1851; and if other associated company schemes were alike deferred, there would be little time remaining to have this Babylon swept and garnished, and put into a condition befitting the mistress of cities, when she is going to have open house to receive the world!

One of the newest of these speculations is the production of gas from water. That the thing can be done has been proved; it only remains to adopt the discovery to general use. In such case, away with the gas mains, for the water pipe supplies that element; but in case it did not, then the day is not far distant when the debris of coal-pits will be converted into the subtle vapour, and sent forward, over hill and dale, to our street ranges, in one iron tube to feed the countless jets which enlighten science and labour, and to supplant huge kitchen-range furnaces by the candescent flicker of a lambent flame.

Many of the suggestions put forward by *THE BUILDER* seem to have met general approbation, and some of them have even been carried out; and although the similarity of modes of thought occurring to minds similarly constructed, may have pictured such a train to others, who at the same time brought not forth the conception, yet, if an idea flung at random have the effect of bringing to vitality the still-born thought, the end is answered, and none of your communicants will complain less of the realisation of their own peculiar phantasies than

QUONDAM.

#### UNDERGROUND STEAM ENGINE IN TAMAR LEAD MINES.

Our notice of the flue formed from the Tamar lead mines having excited much attention, we have received several communications on the subject. It is but justice to state, that the project of putting the engine there emanated from Dr. Spurgin, and that consequently the engine, and the shaft sinking by its aid, are designated by his name. The results are likely to be of such benefit, we are told, to the mine, that other mines, which by reason of their depth cannot be worked on a profit (or the mineral beneath may be from other causes inaccessible), are now likely to be resumed, and, in fact, a new depth of metallic riches opened up by degrees. The cost of the working of the engine for coal for 24 hours is 2s. 6d.; for oil, tallow, &c. 1s., and for two engine men, 5s.—total 8s. 6d. We hope Dr. Spurgin will send a model of the arrangement to the Great Exhibition of 1851.

#### NOTES IN THE PROVINCES.

In removing some plaster from the interior of Penally church, near Tenby, a star-shaped pattern was found to have been painted on the walls, with figures in ring-mail armour, apparently of the twelfth or thirteenth century. Two pieces of an ancient stone cross have also been discovered.—A new gas company in course of formation at Newport, in Wales, have resolved to charge a maximum price not to exceed 4s., in place of the 6s. charged by the old company though coal is to be had from the pit close at hand at a very moderate cost.—So great is the demand for dwelling-houses at St. Helen's, says the *Liverpool Times*, that it is almost impossible to build them fast enough, and there is scarcely a glass, chemical, alkali, copper, or other work where great and extensive alterations and enlargements are not in progress or already made.—The *Albion* states that a Patent Law Reform Association is about to be formed in Liverpool to support the movement in the metropolis against the existing law.—So indignant are many of the Sheffield people at the alleged deterioration of quality in the gas supplied to them, that they propose to manufacture it for themselves in future. Some logicians, we perceive, who still regard the demonstrated fact that prices have been, and, in many cases, still are, far too high, as a mere hypothesis, most inconsistently argue that such prices are not charged in order "to enhance the dividends of the shareholders, seeing [through the clear spectacles of *THE BUILDER*] that that course, when adopted, fails to attain the object sought," but that it is in order to remunerate them for leakage! We should have thought that the way to enhance the dividends would have been the best way to attain such an object, but we fear that too many companies have really acted on the absurd hypothesis that screwing at the spigot would best compensate for leakage at the bung-hole.—The Northampton Gas Company have resolved to reduce the price of their gas to 5s. a thousand cubic feet, with 10 per cent. discount to annual consumers of 250,000 feet and upwards. The local *Herald* complains much of deficient quantity, and urges an increased supply, which the company may depend on it will henceforth be more requisite than ever.—The baths and washhouses recently erected by Sir B. Heywood, at Miles Platting, at a cost of 2,500*l.*, already nearly pay their own expenses, and a full return for the capital is of course anticipated.—The Salford Council are about to sewer and drain, level, flag, and pave, a number of the newer streets of the town, such as Walker, Chadwick, Prescott, and Crowder Streets.—Blackpool is about to be lighted with gas. The Vegetable Oil Gas Company, Vauxhall, London, have undertaken to supply the town for five years, at their own risk. It is to be hoped that "vegetable oil" companies will be more successful than whale and other "animal oil" companies were. The material, however much better adapted to gas lighting, we should fear, will, in course of time, be too limited in quantity, as well as increased in price.—It is proposed to enlarge the parish Church of Bradford, which is now far too limited for the requirements of the parishioners.—A mechanics' institution is in course of establishment at Ossett.—Notice

has been given of an intention to apply to Parliament for powers to supply Stockton, Middlesbrough, Yarm, &c., with water, and to unite for this purpose with the Darlington Gas and Water Company. It is proposed that the pipes shall be laid by the side of the Darlington, Stockton, and Middlesbrough Railway—an economical plan, suggested by the *Gateshead Observer*.—The Bishop of Durham has presented 500*l.* towards the restoration of the dormitory of the ancient monastery attached to Durham Cathedral. The Dean and Chapter have also granted 1,000*l.* for the same purpose, in addition to nearly an equal sum already expended on the fabric. This building is believed to be the largest room in the kingdom, except Westminster Hall. It is at present intended to fit it up as a library, or as a library and museum.

#### ARCHITECTS' BENEVOLENT SOCIETY.

A MEETING of architects was held on Wednesday, in the Freemasons' Tavern, Great Queen-street, in order to lay the foundations of the Architects' Benevolent Society; Mr. Sydney Smirke in the chair.

In his opening address, the chairman said that they were assembled together upon an occasion of great interest, and under circumstances which deeply affected the character, and honour and welfare of their profession. In forming this society, they were about to perform a duty which appeared to him to have been too long delayed. It was a duty incumbent upon them not only as members of a large and honourable profession, but as Christian men. A doubt had been expressed as to how far the peculiar nature of their profession was such as to render necessary or justifiable the establishment of this society. It had been argued that there were already two funds, viz., the Artists' Fund and the Artists' General Benevolent Society, which afforded relief to necessitous architects; and there was also the "Jerningham Fund," which was exclusively devoted to the benefit of this profession. This, doubt he considered of such vital importance, that it might be said to involve the whole spirit of the question which they were met to discuss. He (Mr. Smirke) would briefly state the motives which had influenced himself and those who were associated with him in the part they had taken in the establishment of this society. The Artists' Fund came into existence in the year 1810, and the Artists' General Benevolent Society in 1814. Since these periods the number of architects had greatly increased in this country, and therefore it was necessary that they should have additional means of affording relief in case of need. In the city of Edinburgh, previous to the year 1812, there were only six practising architects. In 1846 this number had increased to thirty-seven. In Newcastle, in the year 1812, there was only one architect, and at the present time there were twenty practising in that town. In Liverpool, during the early part of the present century, the architects numbered nine or ten, and there were now 75 or 80. In Manchester, in the year 1809, there was one architect, and there were now 34. In the town of Leeds during the early part of the present century, there were two or three, and as late as 1845 there were only four or five; but the number had now increased to twelve. In the city of Exeter, previously to 1846, there was not one practising architect, and there were at the present moment six or seven. The same principle of calculation will apply to almost every provincial town in England. In London, it would appear that at the beginning of the present century there were only ten or twelve architects. In the directory for 1812 the number had increased to twenty-three; and in the year 1850 there were no less than 750 practising architects. There could be no doubt that there had been a similar increase in the other branches of the fine arts. Under these circumstances, he felt sure that the meeting would concur with him in this position, viz., that if the two societies that existed were only just sufficient to meet the wants of the profession in former years, they must necessarily now be entirely insufficient; or if, on the contrary, the funds of these societies are sufficient for all their present wants, then it must follow that their means formerly have been extravagantly too much, and quite disproportioned to their object.



There could be no doubt that this has been the case: he need only appeal to those present who assisted in dispensing the funds of these societies, whether they were not perpetually receiving applications that they could not entertain for want of funds. To meet this state of things the Architects' Benevolent Society had been projected, and he was happy to say that their endeavours had met with signal success: almost every eminent member of the profession had joined them, and he had every reason to believe that they were now about to enter upon a long career of public usefulness. It was upon the exertions of the profession that their undertaking must rely for permanent prosperity, but he thought they were justified in looking for encouragement and patronage from amateurs of eminence, many of whom are deeply versed in the theory and history of the art, and he thought that the pleasure they derived from the study of architecture would be greatly enhanced by a consciousness of having shown a sympathy for the architect. Whether the society met with encouragement or not, of one thing he was quite sure, that God would help those who help themselves, and upon this divine assistance he confidently relied. The speaker then proposed a resolution to the effect that the establishment of such a society would conduce to the honour and well-being of the profession.

Mr. Cockerell seconded the motion, stating that he was originally one of those who doubted the necessity of establishing this society, but he had now become a convert to it.—The motion having been carried.

Mr. Tite, the treasurer, stated that the efforts of those who had interested themselves in the formation of the society had succeeded beyond all expectation. The sum collected to the present time amounted to 400*l*., and amongst the subscribers there were no less than 140 annual. Mr. Tite concluded a brief statement as to the advantages to be derived from the society by proposing the adoption of a series of rules for its government.

Mr. Mocatta seconded the motion, which was unanimously carried.

On the motion of Mr. French, seconded by Mr. Wyatt, Mr. Baker and Mr. H. Roberts were elected auditors.

Mr. Mair was honourably mentioned as the originator of the Institution.

#### NORTH SURREY INDUSTRIAL SCHOOL AT ANERLEY.

The industrial school for the pauper children of the parish of St. Luke, Chelsea, and of the several parishes comprised in the Croydon, Kingston, Lewisham, Richmond, and Wandsworth and Clapham Unions, erected on fifty acres of land adjoining the Anerley station of the Croydon and Epsom Railway, under the directions of Mr. Lee, architect, for the accommodation of 600 children, at a cost of 15,000*l*., were opened last week. The land cost 3,300*l*.

The buildings comprise three large school and class-rooms, with apartments for two schoolmasters, two schoolmistresses, and for infant schoolmaster and mistress; also for tradesmasters, steward, matron, other officers, and domestics, with dining-room (capable of containing 600 children), chapel, chaplain's room (for examining and instructing the children), board-room, work and store-rooms; two receiving wards for the retention of children for twenty-four hours (or until examined by the medical officer), with baths, washing-rooms, and rooms adjoining for the baking, and deposit of the children's own clothes; also, two kitchens, bakery, six lavatories, and two plunging and other baths. Upstairs, there are fourteen dormitories, with lavatories and conveniences adjoining each; also a bedroom for an officer or servant, so that no dormitory is left without proper superintendence. The laundry is a detached building, having accommodation for forty girls to wash, with ironing, mangling, and mending-rooms; drying-room, with drying and airing closet: adjoining these are rooms for re-making, washing, and drying beds. The infirmary is an isolated building, containing seven wards, with two day and night rooms for nurses, kitchen, surgery, two bath-rooms, washhouse, and laundry. The buildings are warmed throughout by a hot-water apparatus, placed in the centre under the dining-room, from which

cast-iron pipes are fixed in large air flues, for the circulation of hot water over the whole extent of the ground floor of the buildings. From these air flues vertical flues are formed in the walls, to convey the warmed air into the various rooms and dormitories. Ventilation is effected by the vitiated air being conveyed through vertical flues from the various rooms, &c., into a continuous chamber formed in the roof, communicating with a shaft 120 feet high. The smoke from the hot water apparatus, kitchen fire, and cooking boilers, entering the shaft, forms the motive power for ventilation. There are extensive enclosed playgrounds for boys, girls, and infants, with large sheds in each for use in wet weather; also distinct airing-grounds for invalid boys and girls, likewise a pleasure garden for the sole use of the girls. The farm-buildings, which are erected at a short distance from the main buildings, comprise a bailiff's house, washhouse, dairy, cowhouse for 12 cows, root-house, barn, hayhouse, tool and implement houses; stable, cart, chaise, and slaughter houses; piggeries and henhouses. The cowhouse and dairy are separated from the other buildings for teaching the girls dairy work. Adjoining the farm-buildings gasworks are being erected, where gas will be manufactured for lighting the whole of the buildings. About seven acres of the ground are laid out as kitchen garden, for teaching boys gardening, and the rest of the land is to be cultivated by the boys entirely. It is in contemplation to build a separate chapel, estimated to cost 1,800*l*.

#### THE NEW FLOUR MILL, UPPER THAMES-STREET, LONDON.

In a recent article we mentioned, with regret as to the position of its enormous chimney-shaft, the building recently erected in Thames-street for a flour mill. It is one of the largest private buildings in the city of London. We now give further particulars; for, as a construction, it is very interesting. The length of the building (external) is 227 feet 10 inches; the width at the north end, in Thames-street, 62 feet; the width at the south end, or river front, 48 feet 10 inches. The external walls are 4 feet 8 inches thick in the basement above the footings; the footings are seven courses high, each course projecting 2½ inches in regular steps, making the bottom course about 7 feet 4 inches wide. The river front (or south wall) is still thicker, being 6 feet 9 inches in the basement; and the bottom course of footing is 10 feet. The south front and flank wall next Puddle-dock is built of stone in the basement.

The whole area of the building was excavated to the depth of 15 feet, and filled in with concrete composed of Thames ballast and Portland cement in the proportion of six parts of ballast to one part of Portland cement. The area thus concreted is 238 feet long, 72 feet wide, and 15 feet thick, containing about 9,520 cubic yards of concrete.

The walls of the building are 90 feet high, to the top of the parapet: they are 3 feet 2 inches thick in the sixth story, and 2 feet 9 inches thick in the seventh and eighth stories, and are finished at top with a fascia and cornice formed wholly in brickwork.

The chimney-shaft is 70 feet high above the parapet of the building, 12 feet 4 inches diameter at the base, and 8 feet diameter at the top. The cove and neck moulding at the top is of cut bricks rubbed to a mould, the cap projecting 2 feet beyond the diameter of the chimney-shaft, making the diameter of the top 12 feet, being within 4 inches of the diameter at the base.

The building is eight stories high, including the ground story, and contains seven floors of wrought-iron joists, 6 inches deep, drawn by an engine to the required shape: these joists are supported by sockets in the cast-iron girders: the cast-iron girders are supported by hollow cast-iron columns which fit one on the other, the ends being turned true in lathe, the top of one column fitting the socket at the base of the column above. There are 61 cast-iron columns in ground-floor, 14 inches diameter; 61 on the second story, 12 inches diameter; 61 on the third story, 10 inches diameter; 61 on the fourth story, 9 inches diameter; 61 on the fifth story, 7 inches diameter; 61 on the sixth story, 6 inches diameter; 61 on the seventh

story, 5 inches diameter; in the whole 427. These columns support 567 cast-iron girders, each weighing 11 cwt. The floors are of Rock-hill stone, laid on the wrought-iron joists.

The contractor (there is no architect) is Mr. James Ponsford. The superintendent of the works, James Dunsford. The engineers and founders are Messrs. Swane and Bovel.

#### Miscellaneous.

**RAILWAY JOTTINGS.**—The sale of materials at the Britannia Bridge came off last week. The proceeds have been estimated at about 12,000*l*.. Every thing went off but two iron pontoons and some capstans. The hydraulic presses have been purchased by their makers, the Bank-quay Foundry Company, Warrington, for the purpose of display at the International Exhibition. —The London and North-Western contract for extra carriages for the Exhibition was let on Saturday last. The directors had before them tenders from seven carriage-builders, and accepted that of Mr. Wright, of Salting, near Kinghorn, which was 25 per cent. lower than the highest, and about 5 per cent. lower than the next lowest. The price given for a carriage holding forty persons is perhaps the lowest ever submitted to, and is understood to be 154*l*. per carriage. —The railway authorities have agreed to forward articles for the Exhibition at half the usual charges, under certain restrictions and conditions. To encourage the provincial artisans' "subscription clubs" for excursions to and from the Exhibition, they have also agreed to charge single fare as by Parliamentary trains, with a further per centage of abatement for distances beyond 100 miles—the ticket to hold good for six days, and the trains to begin running only on reduction of the charge for admittance to the Exhibition to one shilling, and not before the 1st of July. In fact, the advantages held out to ordinary excursionists last autumn (we may humbly say at our recommendation in the first place, seconded by the *Times* and other influential authorities), were in many cases considerably greater: e.g. to and from Bristol for about 6*s*.. We understand, moreover, that the South-ampton artisans have engaged trains for themselves, which will only cost some 1*s*. or 1*s*. 6*d*. for each individual. The companies must reconsider their resolution. —"We see with interest," says the *Athenæum*, "that the excursion system—which we have already followed into many of its issues—grows apace—moves in expanding circles—and expatiates over a daily widening field. France and the Rhine are dwarfed into insignificance by the last move with this great agency. A number of spirited Americans propose to establish a series of cheap trips across the Atlantic! The American projectors calculate that a hundred passengers, with first-class fare and accommodation, will pay at 60 dollars for the trip and return—100 dollars (instead of 100 pounds) for the entire journey, and six weeks' residence in England. The first experiment of the new project will probably be employed for the purpose of bringing our Transatlantic brethren into our streets during the Great Exhibition of the world's produce."

**BEDFORDSHIRE ARCHAEOLOGICAL SOCIETY.**—A meeting of the members was held at the society's room, in Bedford, on Tuesday in last week, the Rev. J. Taddy in the chair, when several gentlemen were elected members, and the resident secretary, on the ground of too frequent absence from Bedford, resigned his office. A copy of Mr. Cottingham's work on Henry the Seventh's Chapel at Westminster was presented by the Rev. John Mindham. It was decided that copies of *The Builder* and the *Ecclesiologist* should be taken for the use of members. Office bearers were then elected for the ensuing year. Some coins, &c., were afterwards presented.

**THE WHITTINGTON CLUB DECORATIONS.**—We are asked to say that although about 400*l*. were spent upon the room, as we stated, the repairs absorbed more than half the above sum, and that about 150*l*. was the total sum applicable for the painting. The figures on the pendentives are to be altered. We are glad to find that our remarks were received, as they were made, with good feeling.



### PROPOSED NEW CHURCH IN GLASGOW.

—A church is to be built for the Rev. Mr. Porter, on the lands which formed part of the old orchard at Willowbank, on the south side of Sauchiehall-road, and which is now the property of the Royal Bank of Scotland. The style of architecture chosen is Gothic, with a spire shooting up some 180 feet from the ground. The church is calculated to contain from 600 to 700 sitters; galleries, common in Presbyterian places of worship, are dispensed with; and the interior will be fitted up with stone pillars, ashlar walls, clerestory windows, and an oaken roof. The pulpit will be constructed of carved stone. In connection with the church there is to be a large school-room, with the usual accommodations of vestry, deacons' room, and dwelling-house for church-officer. The plans are by Mr. Emmett, architect. The total cost is estimated at 10,000*l*.

**"BURGLARS DEFIED: LOCKS: TELEGRAPHS."**—Under this title, the *Bradford Observer*, one only of a host who have been ringing timeous alarms on our bells and bell-turrets, says, "THE BUILDER asks, could not bell-wires, or other apparatus connected with bells, be secretly attached to lockwork or doors, so as at once to give warning on the slightest attempt to pick the lock or move a bolt? There is no doubt of the possibility of what is here suggested, and *apropos* of the subject, we are reminded of an 'electric indicator,' the operation of which is characterised by all the astonishing features of the miraculous telegraph. Secret wires are laid with well continued, though simple communications, with all the doors and windows of a dwelling-house, outhouse, stables, &c., the *modus operandi* of which is, that the instant any door, window, &c., is ever so stealthily opened, an electric circuit is completed, and the indicator (a bell under lock and key) in the master's room is instantaneously rung." Even the police have been taking personal precautions based on the principle suggested. The chief superintendent of the Liverpool police has had fitted up in his house an alarm on the attic floor, with a weight falling the whole depth of the house [a few wheels would have obviated the necessity for so great a fall], and communications made with every door and window, so that the moment any of them are opened, after the apparatus is fixed for the night, the alarm is set in motion and a thundering and continuous noise excited. This is precisely what was intended in our first suggestion. A Liverpool contemporary, in noticing it, gives another "nut for thieves to crack." It is "even more simple and less expensive," says the writer, "than the one we have already described, being nothing more nor less than a 'cracker' of card-board, about the size of an envelope, and to be called 'the anti-burglar.' To each end is attached a loop, by which it may be connected with the door and door-frame, or with the window, on small hooks, so that when either is opened the cracker is severed and a loud report takes place. The burglar would either imagine himself fired at or would be scared away by the alarm, which would wake a very sound sleeper."

**THE METROPOLITAN PARISHES AND THE SEWERS COMMISSION.**—An adjourned meeting of delegates was held on Tuesday last in Marylebone Court-house, when it was resolved—"That a committee be appointed to confer together for the purpose of preparing and laying before the representatives of the metropolitan parishes a plan for controlling the local expenditure of the metropolitan boroughs, in reference to the administration of sewers."

**GLASS.**—Water-pipes of glass appear to be getting into use in America. Mr. W. T. De Golyer, of Schenectady, N.Y. has a patent for making tubes of such a form as to couple different lengths together, and form glass conductors for water, of any length. About 1,000 rods of glass pipes, of different diameters, have already been laid down; and Mr. J. Matthews, of this city, has tested the strength of a pipe 1½ inch in diameter, made at the Albany Glass Works, and found it capable of standing a pressure of 200 lbs. to the square inch, or a column of water 459 feet high. Mr. Wilson, of Hastings, a few miles out of the city, has connected these glass tubes with a hydraulic ram, to stand a pressure of 80 feet high. After the joints were cemented only four days, the water was let on, and the joints

were found perfectly tight.—A Wigan paper states that the Newton Crown-glass Works are to be once more put into active operation, with a great number of hands, by a Mr. Stock, of Liverpool.—The Treasury have issued a special order deciding the duty to be charged on foreign glass apparatus for chemical purposes on importation; such articles as rough ground stoppers, caps, and punty marks, not to be deemed a cutting within the meaning of the rates in the Act 8 & 9 Vict. c. 90; but to be subject to the duty of 1*d*. per lb. only as white flint glass goods, not cut, engraved, or otherwise ornamented.

**ART AND SCIENCE AT THE MANSION-HOUSE.**—We are glad to be able to state that the Lord Mayor and Lady Mayoress intend to give, during the Great Exhibition in the ensuing year, in addition to the usual entertainments at the Mansion-house, several evening *conversazioni*, to which will be invited, not only the notable men of our own country, but all foreigners of distinction who may then be in London. This liberal project of the Chief Magistrate and the Lady Mayoress will not only give a new feature to civic hospitality, but will accomplish the desirable object of introducing to each other persons of eminence of all nations who might otherwise remain without the advantage of such knowledge. The late Lord Mayor entertained every class of men but those distinguished in art, science, or literature, through want of sense in those who arranged his parties. The present Lord Mayor appears to have a juster appreciation of those who mould, improve, and delight the world. He seems to be on a right tack, and we advise him to be his own steersman. He has a fine opportunity to ennoble the name of Musgrove.

**RE-ASSESSMENT OF THE PARISH OF ST. LUKE, CHELSEA.**—In THE BUILDER of August 31, and more particularly in that of September 7, reference is made to the intention of the board of guardians of Chelsea to re-assess their parish by a paid surveyor. Considerable opposition to this has been offered by some of the parishioners in vestry as well as by several of the guardians. On Wednesday last, however, an order from the Poor-Law Board to revalue the parish was read, which directs "that a survey shall be made and taken of the messuages, lands, and other hereditaments liable to the poor-rates in the said parish of St. Luke, Chelsea, and that a valuation shall be made of the said messuages, lands, and other hereditaments, according to their annual value;" and directs the said guardians to appoint one or more fit person or persons to make and take such survey and valuation. It was afterwards agreed that the *intention* of revaluing the parish should be advertised.

**STRIKE AND INTIMIDATION.**—Messrs. Fox and Henderson, as contractors for the works of the Exhibition Building in Hyde Park, have had up, before the police magistrate at Marlborough-street, one of the glaziers employed by them, for threatening to make the firm "repent" having refused to give him an audience at the head of fifty fellow workmen, who had previously struck work along with him. The defendant produced some of these to prove that he had only said Mr. Fox might repent it. A correspondent informs us that the men were working at the Exhibition for 4*s*. per day, and did not complain. They had a document read to them on Friday, requiring them to put in 58 panes of glass, or upwards of 200 feet of glass for a day's work, for which they were to receive 4*s*. It being considered impossible to execute the quantity in a workman-like manner, and the firm not altering their proposals, the men thought proper to decline them. No man, he continues, can put in more than 35 to 40 panes per day, consequently his wages would be reduced to about 15*s*. per week.

**EXHIBITION OF INVENTIONS AT SOCIETY OF ARTS.**—The inventions of the past year, now being exhibited at the house of the Society of Arts, Adelphi, merit the special notice of our readers. They comprise many new patents and registered and other inventions of interest to the building trades, sanitary improvers, and others. Amongst them are chimney tubes, the globe windguard, smoke conductor, filters, baths, gas meters, the torsional door-spring, handles and fastenings of doors, traps and grids, veneering machine,

hollow brickwork, &c. &c. By the way, it is rather too late to patent the principle of hollow brickwork now, whatever may be the merit of new or peculiar forms of hollow bricks. In engineering and other mechanical departments of course there is also a fair proportion of novelties. Amongst these we perceived the yielding breakwater, already noticed in THE BUILDER, and a flexible lighthouse.

**THE BROKEN GIRDER BRIDGE AT JOINER-STREET.**—Sir John Rennie and Mr. Brunel have made a report, read at a general meeting of the Southwark Pavement Commissioners, in which they give it as their "joint and decided opinion that the bridge as constructed was insufficient, and ought not to be replaced by one of similar construction." Mr. Barlow, the South-Eastern Railway Company's engineer, has since sent a note to *The Times*, in which he says:—"I entirely differ from the conclusions at which these gentlemen have arrived, as I do not consider the principle of the bridge either incorrect or objectionable; and I trust, in justice to the patentee, Mr. Warren, that you will do me the favour to insert this letter." Events, it will be seen, have fully justified all our statements as to this matter.

**THOROUGHFARE FROM THAMES-STREET TO THE DOCKS.**—I take the liberty to call your attention to the fact that the old house built up against the interesting remnant of old London-wall, in Trinity-square, Tower-hill, is now in course of pulling down for rebuilding. This is a house which projects into George-street, by the bar, and forms one of the obstacles to the long-desired opening of a thoroughfare through this street from Thames-street to the Docks. Both on antiquarian and utilitarian grounds I think it would be very desirable, if it were possible, to put a stop to the rebuilding. The house abuts upon a piece of government ground which would be commercially improved in value by its removal. Could they be stimulated to purchase it?—A. Z.

**PUBLIC CONVENIENCES.**—A memorial has been sent by a number of influential gentlemen to the Commissioners of Sewers, urging them to state whether they intend, under the Act 11 and 12 Vict. c. 112, to provide public conveniences previous to the crowding of the metropolis in May next, when the Industrial Exhibition will open.

**ELECTRO-TELEGRAPHIC.**—Having already noticed Mr. Bachevalier's claim to the copying telegraph lately exhibited by him, we think it but justice to Mr. Bain, the inventor of a telegraph already at work in America, to state, that in a letter to the *Times* he lays claim to the same invention, as its true originator, having patented essentially the same principle so long back as 1843, under the name of the electro-chemical telegraph; and he states that it is this very instrument that now transmits intelligence over upwards of 3,000 miles in the United States.

**ANOTHER GREAT FIRE IN AMERICA.**—Upwards of one-half of the city of Fredericton, New Brunswick, has been lately burnt, including a large portion of its best buildings, hotels, Exchange, and places of business, with a spacious Wesleyan church and parsonage. The fire was still burning when the news was despatched.

**BALLOONING IN AMERICA.**—The steam and railway Alexanders having now realised their dominion over land and sea, are determined seeking a new world to conquer in the clouds. Not only are bold attempts now being made in various parts of Europe to realise this last grand object—even in lagging Spain, in fact, as well as in its more eager and ambitious *confrère*, France, and amongst ourselves,—but also in America, where a Captain Taggart lately ascended from Jersey City in a balloon with revolving fans and steering apparatus. "The captain," says the *New York Journal of Commerce*, "confidently asserts his ability to cross the Atlantic to Europe in three days." We shall be on the look-out for Captain Taggart. According to the *New York Herald*, however, he could not resist taking a dip into the Morris Canal by the way, and so determined was the self-guiding principle of his balloon that it unshipped him, and went ahead of its own accord, "on a bee-line for Boston."







- A Liberal Discount allowed to the Trade.



# The Builder.

No. CCCIX.

SATURDAY, DECEMBER 7, 1850.



THE descriptions of the Temple of Solomon given in the Holy Writings, have exercised the ingenuity of many inquirers, and led to very dissimilar ideas of its actual arrangement and appearance. No two persons who have attempted to give a representation of the building have produced the same result, notwithstanding an apparent minuteness in the description. A few lines with a pencil by a taught hand, give us a more correct idea of a structure than the most laboured verbal account.

The First Book of Kings\* and the Second Book of Chronicles,† show the enormous scale on which the erection was proceeded with, 80,000 men were set to hew in the mountains, 70,000 to bear burdens, and 3,300 to overlook and direct. Taking the cubit as 1·824 feet (although some writers show reasons why it should be less), the length of the body of the Temple, exclusive of the *sanctum*, may be called 73 feet, the width 36½ feet, or half the length; and the height 54½ feet, or half the length of the whole,—the *sanctum* being 36½ feet long (one-third the whole length), 36½ feet wide, and 36½ feet high. The porch extended the whole width of the building, and projected 18 feet 3 inches, or half the width, showing curious attention to proportions.

Villalpandus, a Spaniard, wrote an essay long ago, on the Temple, to prove that the orders, instead of being designed by the Greeks, were the invention of God himself for this building. Mr. Wilkins, in his "Antiquities of Magna Græcia," maintains that the form, proportions, and style of the architecture of Solomon's Temple were the types from which the Grecian Doric Temples were derived.

To-day we have a new writer on the subject, Mr. Edward C. Hakewill, who has published a handsome volume, under the title of "The Temple," the object of which is to show an extraordinary connection and intention in the forms of the Ark, the Tabernacle, and the Temple, and that the arrangement of the last was identical with that of the temples of Greece.‡

The tone of the book will be learnt from the first extract. The length of the ark was 300 cubits, the breadth 50 cubits, and the height 30 cubits.

"The average proportion of the temples of antiquity (says the writer) is, that the length should be twice the width. Here we have a building six times its width, *i. e.* three times the length of the ancient temple form.

The Tabernacle made by Moses was twice its breadth; the temple built by Solomon was also twice its breadth; and the universal practice of antiquity is in accordance with this rule. But in the two instances above mentioned there is another very curious coincidence; not only that their proportion is similar, but that in actual dimensions they coincide with each other, as well as with many of the heathen temples; and that these dimensions, as regards the breadth of the Tabernacle, and one height and breadth of Solomon's Temple, are the same as of the Ark, viz. 50 cubits wide, and 30 cubits high, leaving the whole excess

of size to be in the length, which is exactly three times; the Temple of Solomon being 100 cubits long, the Tabernacle 100 cubits, and the Ark 300.

We have, therefore, in plan, a triple temple, or three temples placed end to end; a peculiarity of form not required by necessity of construction, or convenience, or strength, rather perhaps opposed to these, while its exact relative proportion with the two subsequent temples, each built by Divine authority and Divine inspiration, leaves no room for doubt that this peculiarity was not accidental, not without an object.

How quickly is an object suggested. Was it by this the Triune Jehovah should be typified? or did it shadow forth the three grand divisions or dispensations of time, in each of which that God should be honoured in a distinct and separate temple? or," &c.

With this, which is simply opinion, there is no arguing; but we point out that the dimensions he gives to the Temple are imaginary, based on the supposition that the length and width recorded in the Bible are the *internal* dimensions, while the height and the dimensions of the Ark are external.

A further idea of the extent to which the writer carries his ideas of symbolism may be obtained from the following paragraph:—

"As the Tabernacle, though perfect in itself, was a shadow of the Christian Church, so in the Temple is that shadow stronger as the event is nearer; and the extension of Christ's kingdom, faintly shown by the hanging over of the ceiling curtain one cubit on either side, leaving the width of the holy place twenty-eight cubits, is here, as it were, taken in, and the width made thirty cubits; but the length in both cases is the same: showing that, with a wider extension, the length or duration of the Christian Dispensation should be equivalent to the Jewish. The peristyle of the Tabernacle, protected by a curtain, was its only court, and contained within its narrow limits both the laver and the altar of sacrifice; but in the Temple this peristyle forms, as we have seen, merely the protecting shroud of the holy place, and the altar and the laver are outside; while all around, on every side, are extended courts, whose outer limit of 3,000 cubits square is made emblematic of the world-wide extent of Christ's kingdom, while it again points prophetically to the date of the second advent of the Messiah at 3,000 years from the Temple's dedication."

Our author, working on the written descriptions, produces the Temple as a Grecian Doric Temple, so precisely agreeing with the instructions of Vitruvius, that he cannot avoid thinking that the ancient writer in question must have had the Temple in his mind when he penned his principles.

Of the "chambers" built against the Temple, which have been difficulties in the way of other restorers, our author takes a new view. In the 6th chapter of Kings we have—"And against the walls of the house he built chambers round about, against the walls of the house round about, both of the temple and of the oracle; and he made chambers round about." "The nethermost chamber was five cubits broad, and the middle was six cubits broad, and the third was seven cubits broad; for without, in the walls of the house, he made narrowed rests round about, that the beams should not be fastened in the walls of the house." "The door for the middle chamber was in the right side of the house, and they went up with winding stairs into the middle chamber, and out of the middle into the third."

This has always been read to mean three tiers of chambers, one above the other, a reading which seems to us borne out by, amongst other points, the increasing width of the chambers, which suggests a thinning of the wall at different heights, forming a set-off

(the "narrowed rests") for the beams to rest on.

Mr. Gwilt, in a brief chapter on the Temple, in his "Encyclopædia," says, "in the *interior*, the body of the Temple was surrounded by three tiers of chambers, to which there was an ascent by stairs."

Mr. Fergusson, in his "Historical Inquiry," says, "Around, certainly on three sides—I believe on all four—were what our translation calls, three stories of chambers. The word in the Septuagint, *Pleura*, cannot, by any ingenuity, be so translated; but it may mean galleries, which I believe they were, for anything more useless than a series of little rooms, six or seven feet square,\* opening into one another, cannot well be conceived, or anything more unlike what we know of in other Temples: but as a *three-storied peristyle* (he suggests) it might be made quite as ornamental as those with only a single range of pillars of the Greeks, and might serve the same purpose, whatever that was. If they were chambers (he continues), they were in fact only closed galleries."

Mr. Hakewill adopts a different reading,—will not hear of the chambers one over the other, or of any chambers at all,—but considers that the description applies to a continued peristyle round three sides of the building, of a different width on each side.

Mr. Hakewill dates the Parthenon about 1150 years before the Christian era, and about 100 before the building of Solomon's Temple, on what sufficient grounds we are unable to discover. He says, he cannot conceive "how any archeologist, however impressed with the versatility of the genius of Pericles and of the artists of his time, could for a moment attribute to that licentious man the erection of temples of the severity and purity of these Doric buildings. Pericles built to adorn Athens,—not to honour God, but to please man. As well might Durham Cathedral and the monumental Chapel of Westminster be both given to Henry VII., as the two temples above mentioned be classed with the more elegant works of the Ionic and Corinthian orders in which Pericles delighted."

Amongst other curious notions adopted by our author is the following, concerning Vitruvius:—"In looking at the life of Vitruvius, we see enough to render it very probable that it was in the army of Titus that he held the post of engineer, and might therefore have been present at the siege of Jerusalem. He might have had access to the sacred hooks then taken from the Temple. He might have been the intimate friend of Josephus, when, under the favour of the same emperors who patronised him, Josephus became a denizen of Rome, entirely throwing off all the shackles of his Jewish citizenship, which had so long set uneasily upon him. Is it not possible that they were one and the same person? that Vitruvius was no other than the Latin name adopted by Josephus with his newly-adopted country?"

Mr. Hakewill sees connections and intentions invisible to us, but we, with pleasure, bear witness to the earnestness with which his book is written, and the amount of research and ingenuity (mistaken or not) that it displays.

ART-PRIZE: GLASGOW.—The Art-Union of Glasgow have awarded the sum of 50*l.* to Mr. E. M. Ward, for his picture of "James the Second receiving intelligence of the landing of the Prince of Orange," which was exhibited last year at the Royal Academy.

\* Mr. Fergusson adopts the old Jewish cubit of five hands breadth.

\* Chaps. v. and vi. † Chaps. ii. and iii.  
‡ "The Temple; an Essay on the forms of the Ark, the Tabernacle, and the Temple of Jerusalem; showing their correspondence with the forms of classic architecture, and the universality of its use in the temple architecture of the mosaic dispensation; as of Gothic, for the same purpose, during the Christian dispensation."



## CAUSES AND CURE OF "SMOKY CHIMNEYS."

In the last paper (page 530) it was shown that the cause of the ascending motion of fluids through each other is *gravity*; and we will now proceed to inquire how this principle of *gravity* or gravitation is developed in the action of chimneys.

It will be as well, at this point, to disabuse the mind of the very common error, that "draught" is the cause of action; and it will afterwards be seen that *draught* is altogether an improper term to apply to this action. "Draught," or more properly *current*, in chimneys, is merely a *consequence*, and not a *cause*. It is the action itself, and not the cause of action; and in using the term draught hereafter, we will do so merely because it is already a familiar term, and may, therefore, conduce to the easier understanding of our subject, but must be understood to mean simply the *current* of smoke or air in chimneys, without reference to the cause of such current.

¶ We have already seen why smoke rises, and it is, therefore, easy to perceive that the smoke from a fire would ascend, whether there was a chimney to receive it or not. But let us take two fire-grates of similar construction and equal dimensions; and fix one with, and the other without a chimney, and light a fire in each at the same time. As they continue to burn, we shall find that the smoke rises much quicker from that with the chimney to it. Whence, then, proceeds this difference?

It has been shown, that in the case of all fluids differing from each other in specific gravity, or weight, bulk for bulk, the lighter fluid will ascend through the heavier. This it will do with a velocity proportionate to the difference of their specific gravity; i. e. the greater the difference of weight, the quicker; and the smaller the difference, the slower will the light fluid ascend through the heavier. The same law that governs this motion of different fluids through each other affects equally each particular class of fluid with which a difference, or variation of specific gravity, or weight, can be produced amongst its own particles. For instance, if a portion of the contents of a vessel of water be rendered lighter than the remainder, the lighter portion will ascend until it reach the surface. By the aid of heat this can be done. A gallon of hot water is lighter than a gallon of cold; and hence, we find that a cauldron of water in process of heating is always the hottest near its surface. It is the same with air. To pursue the simile; a gallon of heated air is lighter than a gallon of cold air; and therefore it is that the heated air of a chamber always rises to the ceiling.

Air, as a fluid, differs from water in this respect, inasmuch as it may be made lighter by other means than by the application of heat; viz. by mechanical influence upon the property of *elasticity*, which it possesses in a very high degree, but which water possesses to such an insignificant extent that it is classed amongst what are technically termed, *inelastic* fluids. In reference to our present question of "draughts," or currents in chimneys, only the first mentioned property of air requires to be considered, viz., that of becoming lighter by being subjected to heat; but before tracing their connection any further, we will endeavour to demonstrate the fact, that all bodies, solids included, become lighter by the application of heat.

The absorption of heat by any substance whether in a solid or a fluid form, causes such substance to expand; or, in other words, to occupy a greater space than it did before the heat was applied. For example,—take a piece of cold bar iron of any breadth and thickness, but exactly 12 inches long, and heat it uniformly until it attain a bright "red heat;" it will then be found, on measuring, to have expanded or increased in length, about 1-8th of an inch, or nearly 1-120th part of its whole length, and will therefore measure 12 1/8 inches in length. Again, let a vessel containing exactly one gallon of water when filled to the brim, be placed over a fire or lamp;—it will be seen that as the water heats, it will commence, and continue to flow over the edge of the vessel, long before it reaches the temperature at which it commences to boil; and if the heating be continued until it reach the boiling point, and the water be then allowed to

cool down to its original temperature, it will be found that about 1-3rd of a pint, or 1-24th of the whole quantity has overflowed; and therefore that it has expanded about 1-24th of its original bulk by being heated to the boiling point. In like manner, air, by being heated, expands and occupies a larger space; for, if we take a bladder and fill it about 3-4ths with air by blowing into it, then tie the neck firmly to prevent leakage, and hold it before the fire; in a few minutes the air will expand and fill the bladder.

Now, in proportion as this expansion proceeds in bodies, so do they become lighter; for it will be obvious by the above experiments, that if the expanded 1-8th of an inch, or 1-120th of the whole length, of the heated iron bar were cut off, it would be 1-120th part shorter, and therefore 1-120th part lighter. In the same way, the water, having expanded and lost over the edge of the vessel 1-24th of its bulk, must be 1-24th less than when it was cold, and will therefore weigh 1-24th less than its original weight. And, by heating the air in the bladder to the same temperature as that of boiling water, viz., 212 deg. Fahrenheit, it would expand 1-3rd of its original bulk, and would therefore be rendered 1-3rd lighter.

With solids, and all fluids except those that exist in the gaseous form, there is a limit to the amount of expansion by heat which they are capable of: for instance, at a certain temperature iron melts or becomes fluid, ceases to expand, and, uniting with the oxygen of the atmosphere, forms the oxide of iron; and water, at the boiling point, ceases to expand, and forming into vapour or steam, flies off into the atmosphere. But to the expansion of gaseous fluids by heat, there is no limit save that which limits the power of generating heat; atmospheric air may therefore be expanded to an indefinite degree.

This property of expansion, when applied to atmospheric air and other gaseous fluids, is called *rarefaction*; and we will presently see that the *rarefaction* of air is, in every case, the cause of "draughts," or currents in chimneys. We will first establish this fact in relation to chimneys in use, and will then account for the draughts which may be frequently found in those not in use.

First, then, let us suppose an ordinary room, in which a fire-grate is set in the usual way, and filled with fuel ready for lighting. The temperature of the room being the same as that of the external atmosphere, the column of air in the chimney will balance, and be balanced by the surrounding atmosphere as explained by fig. 4 (page 530). Now place a lighted candle to the throat of the flue, and it will be seen that no "draught" exists in consequence of there being a perfect balance between the air in the chimney and that outside. On putting a light to the fuel there is at first a dense volume of gas or smoke evolved from it, which, being specifically lighter than the atmosphere, ascends through it; and entering the chimney, passes up and out at the top, pursuing its ascent until it becomes dissipated by mixing with the other gases of the atmosphere. It does not ascend because the chimney is there to receive it, nor by virtue of any "draught" in the chimney, because it has been shown that there was none a moment before lighting the fuel. Its ascent up the chimney is then, in the first instance, owing entirely to its superior lightness, and it would ascend with equal rapidity at that instant, were the firegrate in the open air with no chimney above it.

But let us mark the progress of the kindling fire. There has been, as yet, no *rarefaction* effected in the chimney, because there has been no heat applied to the air; consequently, there is no "draught." Smoke or coal gas continues to be evolved from the fuel, and its temperature being greater than that of the air in the chimney, the latter is gradually heated beyond the temperature of the surrounding atmosphere; it therefore becomes lighter, and, the balance being destroyed, it is forced upwards by the pressure of the colder, and therefore heavier, air of the room, and the "draught" commences. As the fire continues to increase, so does its power of *rarefaction*, and a *current* or "draught" once created, there is a constant flow of air towards it, each successive portion of air presented to its action being made hotter, more *rarefied*, and therefore lighter than the last; so that the "draught," or *current*, in-

creases in velocity as the fire increases in strength, continuing to do so until the fire attains its greatest heat.

This effect of "*rarefaction*," or expansion of air by heat, may be explained by the following experiment:—Let AB, Fig. 5,

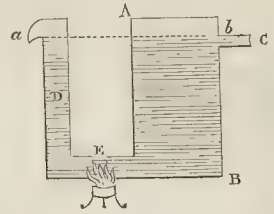


Fig. 5.

represent a vessel filled with water supplied by a pipe C, so arranged as to maintain the surface of the water at the level of the line ab. D is a pipe open at the top, and standing perpendicularly to the same height as the vessel AB, to which it is connected by a horizontal pipe E, so that the water in it shall stand at the same level as in the vessel AB—i. e. at the level of the line ab. The temperature of the water being uniform, the specific gravity or weight will be the same in both; the column of water in the pipe D will therefore balance that in the vessel AB, and the whole will remain in a state of quiescence. Now if a fire or lamp be applied to the middle of the horizontal pipe at E, as shown in diagram, it will impart heat to the water, which heat will be given out in equal quantities both ways; i. e. the same quantity of heat will pass along the pipe E into the upright pipe D as passes in the opposite direction into the vessel AB. But the vessel AB contains a much greater quantity of water than the pipe D, and the quantity of heat supplied to both by the fire at E being equal, it follows that the water in D will heat much sooner than that in the vessel AB; and therefore that at any given point of time after the fire has been applied the temperature of the water in the pipe D will be found to exceed that in the vessel AB.

It has been shown that as a fluid becomes heated so does it become lighter; the specific gravity or weight of the column of water in the pipe D must therefore be less than that in the vessel AB. This being the case, the balance existing between the two columns before the application of the fire will be destroyed; and the colder, and therefore heavier, column in the vessel AB will overbalance the lighter column in the pipe D, and cause it to rise and overflow the top of the pipe at a. The surface of the water in the vessel AB will, at the same time, have a tendency to fall, but the supply instantly afforded by the pipe C will prevent it from doing so, and will maintain the level of the water at the line ab. The preponderance of the column in the vessel AB being thus kept up whilst the fire at E continues to impart heat, a continuous stream will flow through the pipes E and D, issuing from the top of D, and this stream will increase in velocity as the strength of the fire increases, until it arrives at that point where the continual supply of cold water to the pipe E will neutralize the heat-imparting power of the fire.

Now, if we imagine atmospheric air to be the fluid used in the above experiment instead of water; and take the pipe D to represent a chimney, the vessel AB a room, the pipe C the door and other apertures through which a supply of cold air enters, and the lamp at E the fire, we have before us a complete practical illustration of the fact that the rarefaction of air by heat is the cause of the currents in chimneys commonly, though erroneously, called "draughts."

The term *draught* signifies that peculiar motion of matter where a moving body is drawn after or follows the power which produces the motion, and is directly dependant upon it for its onward progress. Thus the cart is drawn by the horse; or, if we lower a bucket into a draw-well and raise it again to the surface filled with water in the usual way, we draw it to the surface; and the motion of the water from the well in such case is *draught*. Now, we have already seen that one fluid rises



through another by the superior pressure of the surrounding column upon its under surface, and therefore that it is *impelled* upwards. We have also seen that the action of chimneys is produced simply by rendering one portion of air lighter than that by which such portion is surrounded, by which means it is *impelled* upwards; and hence we are bound to conclude that this action is not that of "draught," but of an *impelled current*, the impelling power being produced by *rarefaction*.

TBA.

## THE GENEALOGY OF THE FINE ARTS.\*

THIS brings me to the third branch of my subject, viz., the beautiful in art itself. Nature drunk in by the mind, as shown under the former head, is the seed for the production of a new world,—the world of art, which exists for the same purpose as its prototype, to satisfy the sense of beauty in the human breast. From a chaos of sensations previously awakened by the aspect of external nature in the mind of man, this new and fairer creation rises. A more perfect system, freed from the blemishes and faults of the first, is thus established in the sphere of art: the materials and principles, luxuriance and comprehensiveness, are derived from nature; while the fostering love of the beautiful, as the inspiration in the soul, gives it harmonious unity and depth.

Art is therefore something more than a transcript of nature even in her highest charms: it is essentially spiritual. It does not come from nature direct, but is refined and exalted in the mind. If art were no more than a reproduction of nature, it would be the inferior, as the imitator must ever be behind the original. But art takes higher ground; she has a dignity peculiar to herself, an essence of her own, which wins her the advantage. Art appropriates the principles and elements of nature, but, in their passage through the mind, a fresh image is stamped upon her types. They receive a new lustre from the soul, a ray of the beautiful from within. The artist may exercise his genius upon a perishable material, but something from the immortal part of himself has mingled in his conceptions, and this gives to works of art infinitely greater interest than their originals could have. The main difference between architecture and the other arts of design is this,—architecture springs out of physical necessity, while the other fine arts have beauty for their sole object. Architecture is the application of abstract beauty, as much of it as can be applied, to the embellishment of the useful, that is to say, to the forms and elements of necessity. I say, forms of necessity; but some of the general forms of architecture are struck out or foreshadowed by nature herself. But the disadvantage of architecture is, that the useful must, in some measure, qualify the beautiful. Painting and sculpture have beauty for their essence, but architecture is a clothing, or pervading, the useful with the spirit of the beautiful. It is, however, the human architect, so far as consistent with the different scale of his enterprise, following in the footsteps of the Divine. That the primitive wood cabin was its type, may well be questioned. Infancy is as much the type of manhood. Architecture has better types, a richer dower; it has all nature, from the human form and face to the most insignificant plant or mineral: all yield their lesson to the architect. It draws not literally, however, from them. It is not a direct, but an analogical imitation of nature.

But art, taken generally, is an imbodiment of an invisible archetype in the artist's mind, his *beau idéal*; but which he models upon nature as a basis: it is nature transfigured, glorified, by its contact with humanity. Of all created beings, man, particularly as refers to the manifestation of his mind and character, is the most interesting to man; an object, therefore, on which is impressed human feeling and intelligence, possesses, in consequence, a greater interest than by any other extraneous circumstances it could receive. Works of real art are the works of God brought through the mind of man; and therefore doubly "good," beautiful, and divine.

Art may, in this light, be considered as a supplement which the human mind adds to nature. It is a sequel to her original beauty.

Like "the metamorphosis of things into higher organic forms," is their change from nature into art. The mind or imagination of the artist is a mirror that gives back the forms and hues of nature, but heightened and refined: while painting and sculpture array with second life some glorious action, some heroic deed of the past, architecture clothes with new vitality and beauty the forms of external nature.

The sculptured Jupiters and Minervas of the ancients, and the rest of their petrified goddesses and nymphs, are therefore, as remarked under the preceding head, not copies from nature, but from a vision of beauty in the mind of the artist, inspired indeed by nature, but exalted in the mind, and possessing more of perfection than any individual.

But whilst showing the advantage of art over nature in this respect, let us do justice to the latter. The eye requires education and constant practice even to see truly the beauties of nature. All does not lie upon the surface. In the lowest walk of art there is scope for the highest mind. The most gifted eye cannot exhaust the significance of any object, and "in the commonest human face," to quote Fuseli, "there is more than Raphael will take away with him."

We cannot compete with nature on the same ground. For the production, for instance, of powerful light and shade in a picture, an artist must take advantage of the local colour of objects, and place dark ones in the shade, and white ones in the light; while, such is the intensity of light in nature, that she can produce her effects independently of local colour,—effects more gorgeous and potent than the artist, with all the contrivances of art, and of science to boot, is able to reach.

Moreover, the effects in nature are nearly always fine. Natural objects, whether viewed singly or in groups, must be almost invariably picturesque, for both the linear and aerial perspective operate upon them on the most unerring principles—an advantage which the artist, from some error in applying the science, may miss. Light and shade, and reflection, which the artist can but imperfectly comprehend and represent, are also, in nature, acting unerringly.

The artist of a fine perception, is, therefore, of all others, the least satisfied with what he produces, as he is the most capable of seeing the truthfulness and transcendancy of nature. He is also the most capable of seeing the immense distance between her common-place, every-day, effects, and those which she sometimes exhibits to the educated and poetic eye.

The comparative feebleness of art is further apparent when we consider, in the greatest works of art, how few the beauties, how many the faults; how seldom we find a picture that is good in more than one department of the art! The great colourist is deficient in composition; one wonderful in conception and composition, may have no idea of colour; while the master of chiaroscuro is a novice in everything else; suggesting the fact, that only the union of the talents of several artists, supposing that possible, could secure a full, truthful rendering of nature. Each of these important departments has had its respective master, but where is the magician who, uniting their varied excellencies in one production, can conjure up before us the entire spirit and sentiment of nature, and reveal to us the whole mystery of creation?

Besides, from nature comes every element of art; within her sphere lies all the inspiration of genius. An abstract idea of beauty, it is true, exists in the mind, transcribed from no individual object or creature. But, as Pope asks, from what can we reason but from what we know? so, we may inquire, what can we conceive and image to ourselves, but from what we have seen? The first part of genius is a strong susceptibility to the influence of beauty in nature. And the Muses were rightly conceived as the daughters of memory: the great ideas which the Raphaels and Titians have sought to embody, however gradual their growth, have been indebted to nature for every stage of their advancement.

Architecture, as we have seen, in common with all the fine arts, derives its principle of beauty from nature; but, unlike the rest, it is indebted to nature for something else, closely allied to and in some measure interwoven with the other, viz, constructive principle. Struc-

ture is an important element of architecture, and fortunately for us, the affinity between it and nature extends also to construction. Of this fact many illustrations could be given, and of the use made of it by architects. The constructive principle of St. Bride's Church steeple at London, with its spiral staircase and newel, it is well known, was derived by Sir C. Wren from a common form of spiral shell. The dome of the Cathedral of Florence owes its origin to the structure of the human skull, the peculiarity of which is its combining strength with lightness. The naval architect has obtained valuable hints for ship-building from the structure of shells. The figure of the duck originally suggested the form of the ship, and certainly the finest models, the best for contending with winds and waves, are those that most resemble their original, as the Dutch galliot will attest.

But, as in art, so in science, we cannot directly compete with nature; we cannot reach her wonderful mathematical skill,—the nice balance of forces,—resistance, and strain; we must waste our material, and, after all, be behind in that certainty which characterises her engineering enterprises, and which is visible in her most ordinary productions.

Let us glance for a moment over the empire of art, with an eye to this analogy with nature. In music's various moods and instruments we recognise the various hymns of nature,—the murmuring stream, the melody of birds, the wind upon the shore in "vocal reed," which are music's acknowledged types. Many oft-used expressions, as "a tide of harmony," "floods of melody," "gush of song," are confessions of this analogy. Campbell speaks of the "stormy music of the drum;" Shakespeare makes music the food of love, and compares its dying fall to a gentle wind stealing over violets; and Milton's "heavenly host"

"Sang hallelujah as the sound of seas."

In the department of architecture we shall find equal interest. The "twilight grove" is seen in the temple colonnade, or "dim religious aisle." The "awe-inspiring dome" speaks of the canopy of the skies—the celestial hemisphere—which has in some instances been its model. The beautiful curves of the capitals and shafts of the antique columns are at least suggested by lines in nature. The earliest Egyptian column was a stalk of the lotus, capped by its calyx; and its base was, in all probability, the foot of the same plant, where it issues from the root.

All descriptions of design are varied pictures or reflections of nature. Whether a single edifice, or group of edifices, or picturesque avenue, be the object of our admiration as a work of art, one source of our pleasure must be a recognition of principles dictated by nature, and a recollection of corresponding effects in her wide domain.

Every true style has its types in nature, every shade of character its corresponding expression there. The principles of design have been learnt in her school. In the decoration of architecture we shall find nearly the whole of the vegetable kingdom, which, though not literally copied, are yet the most easily traced. No department of creation seems better adapted for decoration in the arts of architecture, sculpture, &c., than this: plants, their foliage, flowers, fruits, have accordingly been more extensively employed, as the basis of ornamentation, than any other objects. In some Gothic buildings the abundance of floral decorations render them rivals, in point of luxuriance, of Nature herself. Plants were very early thus employed. The almond, pomegranate, and flowers were chosen, even in the wilderness, by divine appointment, to give form to the sacred utensils; and, down to the present time, the ivy, lotus, acanthus, palm, vine, oak, and other beautiful objects of the vegetable creation have been the subjects of the chisel, and have given life and expression to architecture and the arts of decoration.

The types of art are in nature, but art, as before shown, cannot be entirely referred to that source. The soul of man has had part, and through that part may, generally, be read much that is interesting of the character and history of the times that produced it. The monuments of art are always the true representatives of the physical, moral, and intellectual state of man. They are the exponents of his

\* See page 553, ante.



religious and political position, and indicate the exact character of his mental development at the corresponding periods of his annals. Nations have written the records of their history in stone. The temples, the palaces, the monuments of Germany, France, and England are so many petrified poems. The Vatican, the Escorial, the Alhambra, each unfold to us more than many volumes could have done, of all that is interesting to man, of all those absorbing and fascinating subjects on which we would question the past. Catholicism has written its history, and more than is ordinarily understood by history, in the monasteries, cathedrals, and monuments of the middle ages; and, whatever be its subsequent fate, the memory, at least, of its worship will need no other shrine. Liberty, commerce, and industry have recorded their enterprise, also, in the same characters. And the monuments of municipal greatness are not among the least of the trophies and achievements of architecture. Ambition has imbibed its yearnings and its triumphs in pyramids, columns, obelisks, triumphal arches; humanity in hospitals, and schools, and institutions of benevolence; and science in railroads, tunnels, aqueducts, and bridges. The edifices of England are so many chapters of our history. The genius of a nation, as well as of the architect, is stamped upon such relics.

We have seen that art is one in its origin,—that its waters, however diversified their channel, flow from one fountain, and its glories, however differing in hue, are reflections of one infinite brightness: may we not go further, and observe that art is one in its real nature and object? In the infinity of beauty and of truth, pervading this mighty universe of matter and of mind, lie the inspirations of art; and it is from his fresher, deeper insight into this inexhaustible life, that genius derives his power, and his productions their value. No matter what his tools, whether colours, or marble, or stone, or sounding pipes and strings, or cadenced words, his work is the same; his eye has looked through and beyond the horizon of his world; his ear has listened, through the discords of the present, to the harmonies of the future; his thought has pierced, through the crust of the surface, to the deep beneath; and now the time is come; he has seen,—he must show; he has heard,—he must tell; he has received,—he must give; in picture, or statue, or structure, or symphony, or poem, he embodies his results; and in all these various forms of production, whatever be the character of their design, the aim of the earnest-souled producer, and the requirement of the earnest-souled receiver, is one,—that the thing produced shall be beautiful and true.

As the artist's work is similar, so is its purpose. Like the mountain stream, which, descending from the clouds of heaven, seeks, with a widening current, the boundless ocean whence its waters first exhaled, the true artist ever strives after that whole infinity of beauty and of truth, from a detached ray, as it were, of which his course of inspired action began. In the beginning of his career there was an extension of the infinite to him,—a revelation to his spirit of a beauty and a truth, never in kind, or higher in degree, than was before known or felt: from this his labours sprang; and the true tendency and end of them is to make what he thus knows and feels, known and felt; to open to his own and all others' eyes a wider and more perfect view of that glory which has glanced upon him; and in proportion as he has fulfilled this shall his work endure. But this is not all:—

The ruling principles also of the several arts are identical: in the expression of the same quality or feeling, the same law of means obtains in all the arts, i. e. the elements must be used after the same principles, and therefore the laws of the fine arts are deducible from the principles of art, and may be considered as a polyglot version of art-law. If, therefore, we obtain a comprehensive knowledge of the principles and laws of art, we possess the key to the intelligence and application of the laws of the arts, which are its different branches. The aim of art, in all its branches, throughout its works, is, from variety of element, by harmony of combination and arrangement, to produce unity of effect; in fewer words, variety in unity.

It would free an artist from the pedantry—

from the trammels of the technical, to acquire some knowledge of the arts which thus claim kindred with his own; and where there is original power, the mind, instead of being oppressed by its increase of attainments, will discover, or discern, more clearly, the common bearings and hidden analogies of the different branches of art, which will thus shed light upon each other. An architect, for instance, would be a better architect from knowing something of painting and sculpture,—while the painter and sculptor would find their advantage in an acquaintance with architecture—the principles of the three arts being the same, only differently applied. The architect need not be able to paint a picture, or model a bust,—nor the sculptor or painter to design a mansion; but each should understand the great principles of the sister arts, and know how, or in what way, they are identical with those of his own, and be able to trace the analogy and relations of the various productions of genius. He does not thoroughly understand the principles of his own art, unless he see their universal application. A study of the laws of art, generally, would not enable the same man to write an epic, compose an overture, and design a palace, but it would be attended with advantages sufficiently important in reference to the art to which he was devoted. It would lead him to see at a glance to which of the arts any given subject was best fitted, and prevent a painter taking one that was more suited, or perhaps only suited, to a poem; or a sculptor attempting to illustrate, by his chisel, one that required the superior resources of painting to express. Many failures have had their source in ignorance or inattention on this head. There are necessary limitations to each of the arts: their scope is various. Painting is more confined than poetry, and sculpture than either. Of the five several arts, poetry is the most excellent—the most comprehensive: the poet has the longest line, the widest range. Ideas can be expressed in poetry that cannot be adequately expressed otherwise,—by any other of the arts.\*

#### SOME SUGGESTIONS FOR ARRANGING AND COLOURING THE INTERIOR OF THE BUILDING IN HYDE PARK.

MANY persons must have heard with surprise of the enormous quantity of space required by comparatively so few a number as 8,700 exhibitors, and many more will, no doubt, feel grieved at the number of interesting objects that must necessarily be rejected for want of room. It is said that about 400,000 square feet of floor and counter space have been asked for, while there are in the building but about 200,000 square feet available; one-half, therefore, only of the intended exhibitors can be accommodated, or one-half of the articles sent in must be returned, and thus many industrious individuals disappointed. It has consequently been determined to form an additional gallery, and thus to give an increased space for about 40,000 feet—but a trifling sum towards the 200,000 additional feet asked for.

The object of this communication is to suggest one or two things which may be found useful. First, as to the floor space. In very many cases it may easily be doubled, by placing, about 4 feet or 4 feet 6 in. above it, a counter or table for other objects to rest on. This height is about that of an ordinary mantel-piece, would be low enough for anything to be viewed with ease on it, and would at the same time be sufficiently high to enable the spectator to have a full view of all objects underneath. By this means a vast additional space would be obtained at but a trifling cost.

I would here remark that all architectural and engineering models should be so placed that the eye of the spectator be on a level with the horizon line, and so that he may stand and view it as he would do the actual building. The tables, as proposed, might be especially reserved for all such models as buildings, bridges, docks, &c., always, as I have said, providing a true eye level. We should be able to look along the surface of a dock or line of railway; but it can hardly be considered desirable to look down on the roof of a church and see nothing but the gilt cock.

As to counter-space—this may also be in nearly all cases doubled, by forming each counter like a roof with inclined sides meeting in the centre, both forming an angle of not less than 45 degrees, or even a more acute angle might in many instances be adopted. Fillets would, of course, be nailed at various distances apart all along each inclined side, to keep the things exhibited in their places. In

many respects this would be found better than a flat table, particularly where the spectators are likely to crowd on each other, and consequently, to lean over it; besides which, most objects are better seen on an inclined desk than on a flat space. No fear need be felt that any object will be in shadow, for shadows there can be none, where the whole roof is one uninterrupted surface of light.

One would have thought that some slight shadow in some part of the building, produced by the admission of uninterrupted light, would have been an advantage, as the beauty of a thing depends almost as much upon the shadows it casts, and its consequent relief, as upon its intrinsic merits. All architectural models, gems, gold and silver work, require pure light for their full effect. Surely the matchless jewel, the Koh-i-noor, should burn in a sun-beam.

And as to the structure itself, the effect that would have been produced by the sun's rays coming in through the southern side, will be lost by the intention there is of filling it up with close boarding: this should not be, as the great length of the building renders some such addition to the perspective needless. Probably, the finest effect of sunlight in this country, in an interior, is—or rather should be—seen on a bright day in St. Paul's, the light coming in in long rays through the windows under the dome. This fine effect is unfortunately but rarely seen, as the windows are painted over, this painting stopping the light and thus enabling visitors to see the dome. It is, therefore, only on rare occasions, and when the windows are opened, that the magnificent effect is seen. This comparison will enable us to judge of the additional interest the admission of pure light in some portions of the building, and through the southern side, would give it.

It has been stated by the commissioners that the wall space is not to be considered as merely a space for hanging things from, but is to be fitted with shelves: if so, I would suggest that these shelves should incline downwards towards the spectator, as all objects on them will be thus much more easily inspected than if the shelves were on a level, and another advantage would be, that a greater number of shelves could be made available. As there appears, too, to have been so slight a demand for wall space, would it not be a good plan to devote the whole of it, not demanded, to raw materials, specimens of minerals, and rare woods; the higher shelves to hermetically sealed bottles, preserved meats, and other such articles?

Another point of no slight importance is the best and most effective way of exhibiting to advantage the quality, texture, and colour of rich silks and velvets: it is to hang them in folds, as they hang naturally in a dress, and not, as they do at the "Society's rooms," plaster the place with them in great flat patches, some three or four feet square. This mode of hanging them in folds will be found to double the beauty of the stuff, as there is then, in addition to the quality, texture, and colour of the silk, light and shade. It will too, as is obvious, save about two-thirds of the space. A Cashmere shawl on a lady's shoulder is a beautiful and graceful ornament, but plastered to a wall is as uninteresting as a piece of oilcloth.

You must allow me to add a word on the specimen of colouring put upon the building. How Mr. Jones could have done this is indeed surprising. But let us compare the first two coloured plates of the second volume of Mr. Jones's own magnificent work with the two last plates; and if we can learn nothing from such comparison, we are incompetent to judge, and our case is indeed hopeless. The colour of the Alhambra is almost worthy of Nature herself. In some parts it is absolutely faultless. In Egypt there are vaster surfaces, and in India richer and deeper colours; but nowhere has the pencil of the decorative artist been used with such judgment, and with such magic skill, as in this enchanted palace. Can nothing be learned from it?

I would here humbly suggest to the attention of the commissioners a mode of colouring the interior of the great building, and which would at least have the claim of novelty and ease of execution.

The system I propose is shortly this. To paint the whole of the iron-supporting columns in pure white throughout the building; and then each aisle throughout its whole length one uniform colour, commencing in the centre avenue with yellow (yellow being the central and brightest colour of the spectrum); the aisles or avenues on the one side being then in orange, red, and purple, and those on the other side green, blue, and violet: thus seven of the aisles, including the central avenue, would make up together the colours of the solar spectrum, and be arranged in the same order—this system being of course continued throughout the building to the lateral walls. No coarseness or glare would result from such an arrangement in so large a space. As (to view it in detail) the centre aisle, looked at separately, would have the same effect as a room covered with yellow paper, so likewise the next in order, the orange, the next purple, and so on. Each avenue by itself would have a simple and beautiful effect; as all single uniformly coloured spans

\* To be continued.



are always seen to have. The next thing would be to blend them together as in the spectrum. Nature herself has placed in their most harmonious order the colours of the spectrum, and has in the most admirable way blended them together, by running one colour into another, and so producing, by the gentlest gradations, the most complete harmony. No art, however high, can do this thus perfectly, but we may try to approach it. I should propose to accomplish it, in this instance, and to blend two adjoining tints together, by running on the under side of each girder, and to about a quarter of their length, some ornamental pattern, in the pure white of the columns. Some say would be necessary in managing this so as to take enough of the white on to the girder without too much covering it. The ornament, too, should not quite touch the head of the columns. This would, in the long perspective, and consequent distance and air, produce, I cannot but think, an almost magical effect; and all the colours being in the distance seen together, the harmony, at least, would be perfect,—this arrangement being the same as in nature. It could, too, be executed by ordinary workmen, and as rapidly as if painted one uniform tint; but its complete success—and it could not be otherwise than successful—would much depend upon the artist's choice of colours, as the colours should not be crude.

The effect of this mode of colouring the great building would be to a spectator, near and immediately around him, that of a room or hall whose general hue is yellow, or green, or purple with spaces or halls immediately round, orange, or blue, or red, but it would be in the far distance that the wonder of the thing would be found, as the air and distance would blend all the colours into one perfect and harmonious whole, and the vast numbers of spectators, and the piles of wealth would appear as if covered with a rainbow.

This, upon reflection, will be found to be (if any decorative colour at all is used) the cheapest and most expeditious mode conceivable of accomplishing it: such an opportunity, too, as this, of showing the effect of large masses of bright colour has never occurred before, and may not again; such a system of colour, indeed, is applicable only in a vast space like that in the Park, and could not apply to a small one,—distance and aerial perspective, being necessary to its full effect. C. BRUCE ALLEN.

#### THE METROPOLITAN LOCAL COMMISSIONERS FOR THE EXHIBITION.

THE various metropolitan committees for deciding on the claims for space in the Hyde-park building, are now definitely formed. We give a list of those which more particularly interest our readers.

##### MINING, QUARRYING, METALLURGY, AND MINERAL PRODUCTS.

Professor Ansted, chairman; Mr. J. A. Phillips, deputy chairman; Professor E. Forbes, Mr. Matthew Uzielli, Sir J. Duke, Bart. M.P.; Professor Tennant, Messrs. Robert Hunt, W. A. Johnson, and Aston.

##### MECHANICAL, CIVIL ENGINEERING, ARCHITECTURAL, AND BUILDING CONTRIVANCES.

a. Mechanical and civil Engineering.—Mr. C. Fowler, chairman; Mr. E. Clark, deputy chairman; Messrs. J. M. Rendel, I. K. Brunel, Thos. Wicksteed, Joseph Locke, M.P., W. Bridges Adams, H. H. Falcon, W. Harding, W. T. Clark, E. Coffey. b. Architectural and other Models, and architectural Contrivances.—Messrs. H. H. Burnell, John Jackson, Capt. J. L. B. Ishington, Messrs. N. J. Cottingham, J. L. J. Scoles, John Humphreys, J. G. Hammack.

##### PHILOSOPHICAL INSTRUMENTS AND MISCELLANEOUS CONTRIVANCES, INCLUDING PROCESSES DEPENDING UPON THEIR USE.

Capt. W. H. Smyth, R.N., chairman; Mr. J. S. Bowerbank, deputy chairman. a. Philosophical Instruments.—Professor De Morgan; Messrs. J. R. Hind, James Glaisher, Augustus Mordan, Andrew Ross, W. H. Thornthwaite, John Chubb, J. Sylvester, John Currie, John Masterman, R. Hanbury, George Knight, W. E. Newton. b. Chronometers.—Messrs. J. B. L. Vulliamy, E. J. Dent, Charles Frodsham.

##### WROUGHT AND HAMMERED IRON, CAST-IRON, AND IRON CASTINGS.

Mr. Wm. Bird, chairman; Mr. C. J. Redpath, deputy chairman; Messrs. Joseph Robinson, J. S. S. Hopwood, Lieut.-Col. Colquhoun, Messrs. Wm. Tate, John Sylvester, R. A. Robinson.

##### WORKING IN PRECIOUS METALS, JEWELLERY, AND ALL ARTICLES OF LUXURY NOT INCLUDED IN THE OTHER CLASSES.

Lord Ashburton, chairman; Mr. John Gray,

deputy chairman; Messrs. Sebastian Garrard, J. Hunt, Samuel Oram, W. Sandland; Sir M. Montefiore, Bart., Messrs. H. T. Hope, M.P., S. A. Hart, W. Wyon, John Bell; Sir E. N. Buxton, Bart., M. P., Sir Wm. Clay, Bart., M. P., Mr. Rt. Mushett.

##### GLASS, CHINA, POTTERY, CERAMIC MANUFACTURES, &c.

Mr. R. Obbard, chairman; Mr. R. Hunt, deputy chairman; Messrs. Apsley Pellatt, Stephen Green, Charles Cowper, G. Houghton, W. A. Wilkinson, J. Richards, J. Wedgwood.

##### FURNITURE AND UPHOLSTERY, DECORATIONS, PAPERHANGINGS, AND PAPIER-MACHE.

Mr. E. Snell, chairman; Mr. E. M. Hubert, deputy chairman; Messrs. Edward Bond, J. G. Grace, Thomas Dowbiggen, Peter Graham, William Smea, W. A. Wilkinson, John Carter. Paper Hangings.—Messrs. Frederick Clarke, W. Haselden, Robert Horne, John Nunn, W. B. Simpson, W. Evans. Papier Maché.—Messrs. J. Rettridge, J. Webb.

##### MANUFACTURES IN MINERAL SUBSTANCES, USED FOR BUILDING OR DECORATIONS, AS IN MARBLE, SLATE, PORPHYRIES, CEMENTS, ARTIFICIAL STONES, &c.

Mr. W. Tite, chairman; Mr. W. Freeman, deputy chairman; Messrs. J. B. Bunning, G. Godwin, C. Larkin Francis; Professor Ansted; Messrs. J. B. White, John Humphreys, A. Aspitel.

##### FINE ARTS.

Lord Colborne, chairman; Mr. C. R. Cockrell, R.A., deputy chairman; Lord Ashburton, Sir M. Montefiore, Bart.; Messrs. John Bell, Henry Weekes, W. F. Woodington; Sir Edwin Landseer, R.A.; Earl Compton; Messrs. Jas. S. Bowerbank, Richard Cook, R.A., D. Williams Wire, J. Cook Evans, David Roberts, R.A., C. B. Wall, M.P., D. Colnaghi, J. S. S. Hopwood, William Tite, Chas. Barry, R.A., G. Godwin, N. J. Cottingham, Thomas H. Wyatt, Charles Fowler, J. B. Bunning, H. H. Burnell, W. G. Rogers, J. Webb, Wm. Wyon, R.A., Alderman Salomons, J. R. Gowen, M. Digby Wyatt, S. A. Hart, R.A., T. Creswick, R.A., Francis Smedley, John Hancock; Sir W. Clay, Bart., M.P.; Messrs. Wyatt, A. Aspitel, John Davies, John Humphreys, J. G. Hammack, Robert Mushett, J. R. D. Tyssen.

#### MEMS. PROVINCIAL.

A SPACIOUS cattle market has been erected in George-street, Chester, near the canal and railway station.—A new residence in the Gothic style for the Roman Catholic bishop at Clifton is in course of erection there. The church adjoining, which is a Grecian structure, is to be new cased in the Gothic Cathedral style.—A chapel to the grammar-school of King Edward VI. at Bromsgrove, has been recently erected, in the first Pointed style, from a design furnished by Mr. H. Day, of Worcester, architect, and carried out by Mr. Robinson, of Redditch, contractor. The fittings are of oak, and the pavements of Minton's tiles.—St. Bartholomew's church, Bath, was opened on Sunday week. It is intended to form, as it stands, the chancel of a future church.—In the storm of Tuesday week, the new Roman Catholic Chapel at Askeaton, in course of erection, fell, says a contemporary, with considerable damage to the building.—A new Temperance Hall is about to be erected at Sheffield, at a cost of 1,000*l.*, to be raised by shares. It is to accommodate 1,200 persons.—St. Werburgh's Church, Derby, has been re-opened, after being enlarged and otherwise altered. The north aisle has been prolonged to afford additional accommodation for 150 persons. The west gallery has been fitted up with free seats for Sunday-school children and others, and a porch has been added to the west end into which the descent from the galleries is effected by means of two stone staircases.—The Tamworth Peel Testimonial amounts to 1,300*l.* A statue is to be erected in front of the Town Hall.—Shares to the amount of 14,000*l.* have been taken for the proposed music hall at Bradford.—The parishioners of Bradford have resolved, before proceeding to the projected enlargement of their parish church, to employ a competent architect to make a complete survey of the fabric. A committee has been appointed to carry out the

resolution.—Two of the wards of Tynemouth have pronounced in favour of the establishment of public baths and washhouses.—The *Glasgow Reformers' Gazette* states, that Mr. York, the contractor for the new Stockwell bridge, has laid the foundation tier of the northern abutment. This consists of a course of heavy blocks of dressed stone, 18 inches thick, and varying in weight from 2 to 2½ tons each. These rest on a substratum of piles, driven 13 feet into the bed of the river, and sheathed and bound. A second course of stone is to be laid transversely over the foundation tier. The top of the piles is 9 feet 6 inches below the surface of low water. The cofferdam permits of the operations being carried on night and day. The expense of preparing the bed of the northern abutment and first pier amounts to more than 4,000*l.* The ceremony of laying the foundation stone will take place early in 1851, so soon as Convener York is prepared to form the spring of the first arch.

#### ARCHITECTURAL CLUB AND A HOUSE FOR THE INSTITUTE.

My attention of late has been directed to several useful and exceedingly interesting articles published in your valuable journal relating to clubs for literary and scientific purposes. Some of your correspondents propose to provide buildings adequate to the requirements of certain classes, but it has always been to me a matter of no small regret that an influential body such as our Institute of British Architects could not provide themselves with a building suitable to their own respectability, and compatible with the dignity of those who represent the noblest science of civilized nations. I would propose the establishment (in connection with the present Institute) of a club adequate to the wants of the members; and also of those who would, as a matter of preference, become subscribers, where all the present advantages of a club could be combined with a literary society, and a first-class Architectural and General Library.\* Certain it is that if the present Institute would establish the "Architects' Club" (a situation such as Buckingham-house, Pall-mall, being chosen), and allow all the respectable Architects in the three kingdoms, who were desirous, to join them, on the usual terms of a 30*l.* subscription being paid as the entrance, and 10*l.* annual, I feel no hesitation in saying that at least five hundred members would be willing to enrol themselves and pay down the required sum, which would enable the promulgators to purchase premises adequate to their present wants, and have such a sum in hand as would enable them to commence an investment towards a building-fund, which should some day raise a structure not to be equalled in London. H. B.

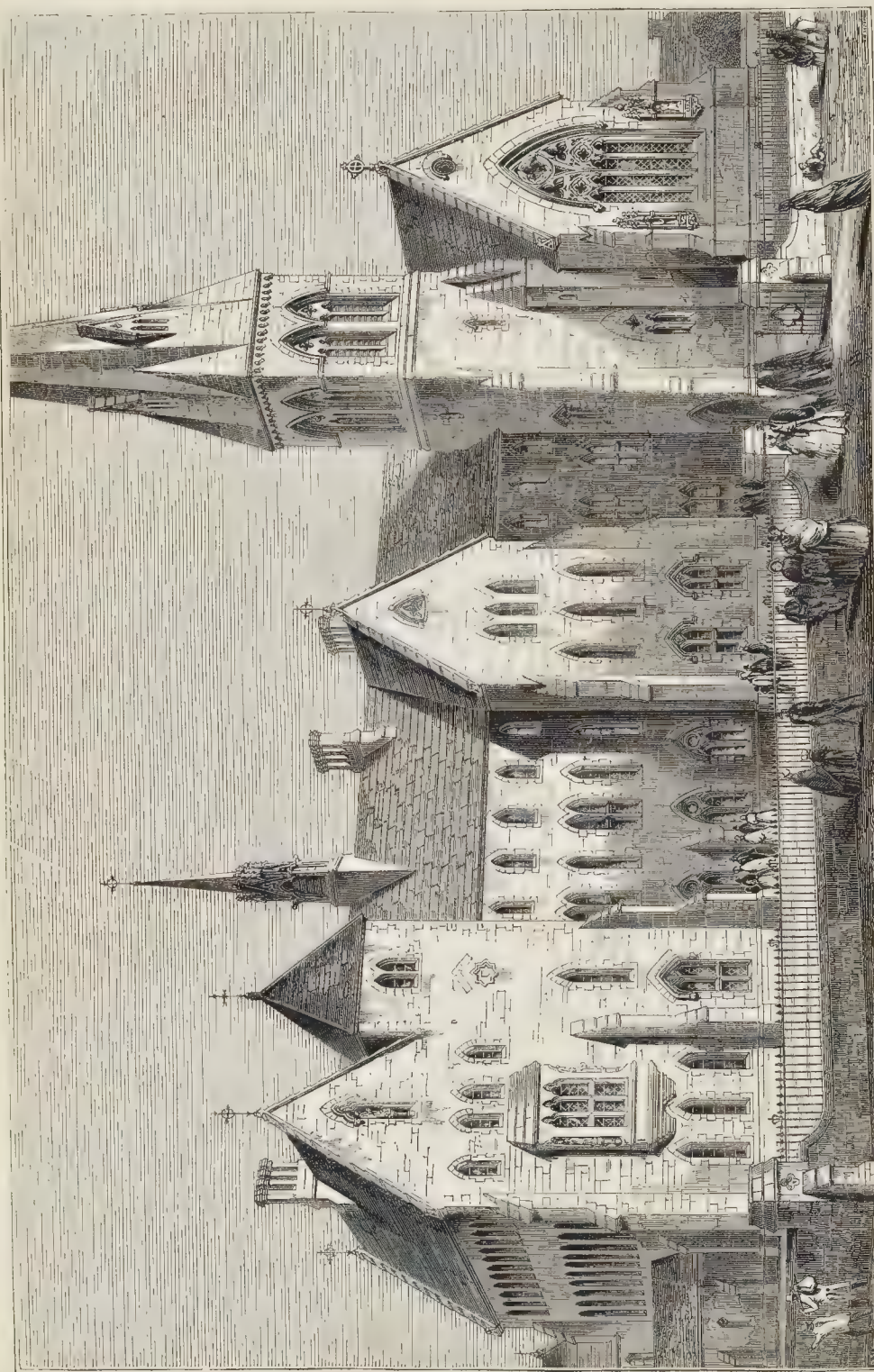
#### THE SERPENTINE AND THE EXHIBITION.

CONSIDERING the thousands of persons who annually bathe in the Serpentine, and the multitudes who perambulate its banks, especially during the "season," there can be no doubt that the state of that water is, even under ordinary circumstances, a matter of considerable public importance. How still more important a matter will be its condition during the Exhibition of 1851, a period at which it is expected the very spot will be thronged by distinguished persons from well nigh every nook and corner of the civilized world. How strange, therefore, that, so far as can be seen, no measures are being taken to remove the filth from the bed of this huge floating abomination, or to convert the latter into a running stream. Government have been told over and over again, by the most eminent physicians of the day, of the danger to the public health during the hot summer months, which arises from the disgusting stagnancy of the Serpentine.

DELAY IN STARTING TRAINS.—In the Sheriff's Court at Glasgow, on Thursday in last week, Sheriff Bell decreed for the full claim of a passenger, with expenses, for a delay of three-quarters of an hour caused by failure of the Edinburgh Railway Company to start a train on the last day at the time appointed. Such a delay the sheriff held to imply mismanagement.

\* This suggestion has been made more than once in our pages, and will ultimately, we have no doubts, be carried out. The "Architects' Benevolent Society" and others could be associated with it.—Ed.





CONVENT OF THE SISTERS OF MERCY, CORK.—MR. WILLIAM ATKINS, ARCHITECT.



## THE NEW AND OLD ROOF OF EXETER HALL, STRAND.

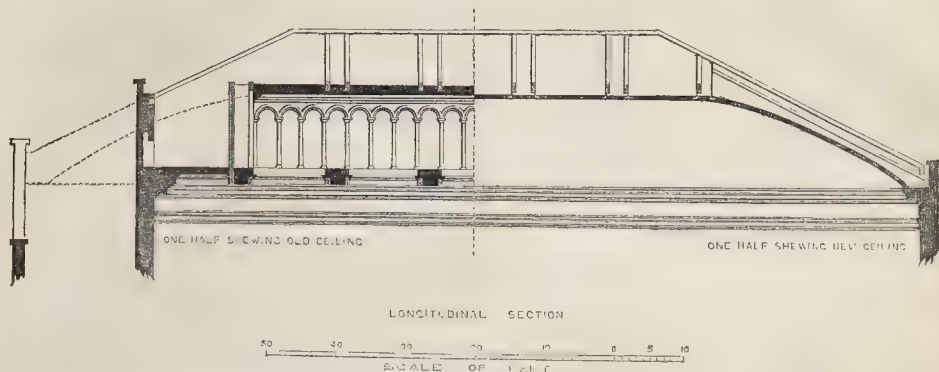


Fig. 1.

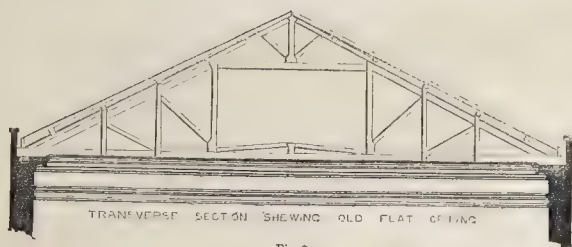


Fig. 2.

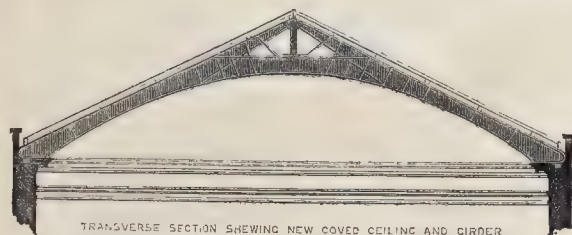


Fig. 3.

greased iron plates, to allow of the spread corresponding to the deflection of the arched girder without causing a thrust, or affecting the walls. Each girder, when it had been completely put together, and quite independent of any part of the old roof (which remained intact), was weighted with upwards of seven tons, the weight it would have to support, which was distributed over its length. The deflection from this process was one inch and an eighth, and the spread of the girder half an inch at each end, which took place on the plates, and so caused no thrust upon the walls. The girders, while weighted, were then bolted to one side of each of the old timber principals above the proposed coved ceiling, and then released of their weight.

Besides these girders there were two independent girders of a stronger construction, and nine smaller ones supporting the hips at either end; all of which were tested with corresponding weights.

This being done, the whole of the original constructed parts of the roof, beneath the curved line of new ceiling, and consisting of the tie-beams, queen post, and struts shown in figure 1, were entirely removed, when no visible deflection took place. Ceiling joists were then attached to the girders and the whole closely boarded over, with the exception of a number of circular openings, one over each chandelier, for ventilation.

The girders were calculated to support a weight of 64 lbs. per square foot, whereas the actual weight on them, we understand, is not more than 45 lbs. and the breaking weight 220 lbs. per square foot. The whole weight of the iron used is 75 tons, which, with the new ceiling, is one-third less weight than the original roof.

Mr. C. J. Mare, of Blackwall, constructed the iron girders, and Mr. G. Myers was the builder employed.

Fig. 1 shows a longitudinal section, with, on one side, the old ceiling and the interposing pillars which made each end of the Hall mere recesses, and on the other side the new ceiling,—2, the old roof and flat ceiling, transversely,—and 3, the new ceiling as formed by the girders.

## THE LIVERPOOL BATHS AND WASHHOUSES.

A CORRESPONDENT who has recently visited the Baths and Washhouses now being erected for the corporation of Liverpool, in Cornwallis-street, has sent us the following particulars. The exterior of the structure is designed without any attempt at architectural display. The front is of stone, of the Italian style, simple in detail and general effect. The entire area occupied by the establishment is covered by four curvilinear roofs, which are made of galvanised corrugated iron sheets, and rough plates of glass, supported on wrought-iron principals. The portion of the buildings which runs parallel with Cornwallis-street contains the entrance-hall, lobbies, committee and waiting-rooms in the lower story, and ranges of

## CONVENT OF SISTERS OF MERCY, CORK.

SAINT MARIE's of the Isle, a Convent of the Sisters of Mercy, Cork, of which we give an engraving, is now being erected from the designs and under the superintendence of Mr. William Atkins, architect. The building contains an establishment for 40 nuns, an orphanage for 60 girls, a house of mercy with accommodation for 70 servants, a poor-school for 400 children, and a school for the daughters of the more respectable class. Under a tower at the north-west end of the front is an entrance for visitors, leading into a spacious gallery, communicating with the reception-rooms, appropriated to the instruction of servants, and the cloister of the convent. The other portion of the ground floor is occupied by the entrance for the sisters, the chapter-room, refectory of large dimensions with an open roof. The choir for the nuns, opening into the chapel, has two cut stone arches filled with screens.

The tower and spire are to be 180 feet high.\* The first floor contains the community-room, 40 feet by 22 feet; noviciate, 34 feet by 22 feet; private school-room, hospital, cells, &c. The upper floor is occupied by all the sleeping-rooms or cells, with a gallery extending the entire length of the building, intersected by a transverse one. The style of architecture is that which prevailed at the end of the 13th and in the early part of the 14th century, and is being executed with rubble masonry and chiselled limestone dressings. The joists of

\* The upper part of spire is omitted in the view to admit of a larger scale for the rest of the building.

the ceilings of the principal apartments are open and wrought, resting on templets supported by corbels.

## THE NEW ROOF AT EXETER HALL, STRAND.

WITH the view of improving Exeter Hall as a music room, and place for public speaking, very considerable alterations have been made, under the direction of Mr. S. W. Daukes, architect. The works are of so novel and ingenious a character, that we will go a little into detail, for the advantage of our readers.

The pillars with the entablature above supporting the hip trusses at either end of the hall, which curtailed the length nearly forty feet, have been entirely removed, so that the whole area of the hall is now thrown open. The flat panelled ceiling was removed, and the hall within the four outer walls is now covered with a coved ceiling, twelve feet higher in the centre than the former flat ceiling, all which has been done without disturbing the slating of the roof. It was a bold idea, and was effected by the introduction of wrought-iron arched girders, composed of plates varying in thickness from half an inch to a quarter of an inch, with angle iron at the top and bottom, stiffeners of strong T iron, and plates to cover the joints. These girders, put up in three pieces, were raised and supported in their places from the tie-beams of the roof, and were then riveted together with red-hot rivets, a furnace for that purpose having been erected in the roof. The ends of the girders were then supported upon smooth



private first-class baths in the upper stories. In this part there are ten apartments of good proportions, each fitted with a bath for first-class bathers. There are thirty-three private bath-rooms for second and third-class bathers, which are designed so as to occupy a space above the dressing-closets of the large swimming baths. These private bath-rooms are each 8 feet square, and are furnished with looking-glasses and other requisites. The frames of the looking-glasses, and the hooks for hanging hats and clothes, are of glazed earthenware, and are, in consequence, kept in a state of cleanliness with little trouble. The handles of the doors are also of white earthenware, and each handle has figures in black, to denote the number of the room. The baths are made of Stourbridge clay, and are glazed in the interior.

The first class swimming-bath is 33 feet 6 inches long, and 26 feet wide; and the second and third class bath is 42 feet long, and 26 feet wide. These two baths are each contained under a separate roof, and the entrances are distinct. Portland cement is the material which has been used for the lining of the swimming-baths. We are informed that a simpler plan will be adopted at the baths which the corporation are about to build in Hyde-Park-street: bricks glazed on the side coming into contact with the water, will be built in cement, so that no additional internal coating will be required. A residence for the superintendent is attached. The cost of the whole is said to be 10,000*l*. The washing department is quite distinct from the baths, and will be entered by doors and passages at some distance from those leading to the baths: the ground-floor and a fireproof upper gallery of a spacious apartment are being prepared for the purpose. The washing-places will be each 5 feet 6 inches by 4 feet 6 inches, divided from one another by wooden divisions. We fear these divisions will prove rather perishable, and should have preferred the use of slate, as in London. The number of washing-places will be 88, of which 14 will be first class, 24 second class, and 50 third class. The apparatus for drying the clothes is being supplied according to the plans of the Patent Dedicating Company. By their process the articles are first put into a hydro-extractor, which is a perforated iron box made to revolve at so great a velocity (1,400 revolutions per minute, we believe) that the greater portion of moisture is thrown off by centrifugal force: in this partially dried state the articles are subjected to the heat of a stove, which soon evaporates the small quantity of moisture which remains.

#### MR. G. DONALDSON'S PLAN FOR REMOVING THE MUD FROM THE SERPENTINE.

THE only objections which I have ever heard urged to the correction of the evil under notice, so far as the removal of the filth from the Serpentine is concerned, have been—

First, the danger to public health that would attend the exposure of the mud.

Second, the heavy expense that the operation would entail.

Now, neither of these objections can any longer be raised, a plan by which they are wholly obviated having been furnished to the Commissioners of Sewers by their agricultural surveyor, Mr. Donaldson. I became possessed of the document through the courtesy of Mr. Hertslett, until recently the much respected secretary to the commissioners; and I now hand you the pith of it.

JOHN LILWALL.

"I propose to lay down, temporarily, a two feet pipe from the Ranelagh Sewer into the lower end of the Serpentine, where it is deepest, and to enclose a space about 15 yards in length by 4 in. width over the end of the pipe in the river with strong hoarding up to the level of the water, into which I mean to discharge the mud by means of barges, to be flushed through the pipe into the sewer, and thence into the river Thames, where there being already millions of cubic yards of mud of a much more objectionable quality, the addition of the few thousands of yards of mud we have here is of very little consequence.

And for taking up the mud I propose to have two barges coupled together side by side about 10 feet apart, bearing between them a square wooden tube 6 feet in width, 4 feet in depth,

and 60 or 70 feet in length, the one end of it resting on pivots upon the two barges, the other being suspended by a crane or windlass with tackle for raising or lowering it, as may be necessary according to the depth of the water and mud; both ends of this tube being open, and when one end of the tube is let down into the mud, the barges being propelled forward, the tube will shovel up the mud, which, sliding up the inside of the tube, will drop into a tender at its upper end: by this tender the mud will be carried and discharged into the hoarding over the outlet pipe. Several tenders will be requisite for this purpose." The cost was estimated at about 1,100*l*.

#### GOTHIC VERSUS CLASSIC.

##### THE LIVERPOOL ARCHITECTURAL SOCIETY.

TWO meetings of this society have been occupied by a discussion of the question, "Whether Gothic or Italian architecture was most suitable to the general purposes of the present age and country?" It was opened by Mr. Barry, in favour of Gothic. Mr. Horner advocated Italian, as did also Mr. C. Reed. Mr. Rimmer and Mr. Boulton supported the opener. The chairman, Mr. Picton, said that a great deal depended upon the association of ideas. It was only a man of cultivated taste that could relish architecture. The painter and sculptor, with his mind imbued with classical ideas, would naturally give the preference to the Italian style. On the other

hand, the man who had dug deep into the mines of English history would turn with admiration to the Gothic. But he thought the Italian would recommend itself to any mind previously unbiassed and unprejudiced. A great deal had been said with respect to Gothic villa; and he was inclined to think that much that had been said was intended to apply to Elizabethan style, which was quite as much Italian as Gothic. He challenged opposition when he said that for almost any purpose for which building was required in the present age the Italian style was superior to the Gothic. The discussion was renewed on the second evening, and, on a show of hands, the society decided in favour of the Gothic by eighteen to twelve.

#### BATHS AND WASHHOUSES, WHITECHAPEL.

WE have received from the Committee of the Model Establishment of Public Baths and Washhouses, Goulstone-square, Whitechapel, a register of the number of the washers, and the time occupied, with the description and the number of the articles washed, dried, and ironed during the week ending November 23, 1850. The total number of articles was 18,444, to dry which, 85 bushels of coke sufficed, at a cost of 1*l*. 8*s*. 4*d*.

The following statement, forwarded to us by Mr. Woolcott, showing the results after washing, wringing, and drying, at the "Model Establishment," is interesting:—

DESCRIPTION OF THE ARTICLES.	Weight when dirty and before being washed.		Weight after being washed.		Weight after the Wringing Process.		Weight when taken from the Drying Chamber, Dry.		Time employed Wringing.	Time employed Drying.	Temperature of the Drying Chamber.
	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.	Minutes.	Minutes.	Degrees.
Twelve Bathers' Towels.....	7	11	16	12	11	12	6	12	2	30	200
Ditto .....	7	13	16	15	11	13	6	14	2	25	210
Ditto .....	7	15	17	1	11	14	6	15	2	35	190
Three Fine Sheets .....	4	15	13	2	8	4	4	3	2	15	180
Three Middling ditto .....	5	4	14	1	8	3	4	12	2	25	190
Three Coarse ditto .....	7	8	16	2	9	0	6	15	2	30	190
Three Small Blankets .....	6	15	22	15	9	10	6	3	2	15	200
Ditto .....	6	10	21	4	9	1	6		2	15	200
Three Large ditto .....	9	1	24	14	12	3	8	12	3	25	210

#### EXTENSION OF PALL MALL.

THE charge of inaccuracy objected by "W." demands a short rejoinder. He asserts that "Lord Ellesmere's house, so far from ranging with the north side of Pall-mall, would stretch about half across the opening, and thus interfere with the realisation of the sylvan vision of Quondam."

Now, the fact is not so—for the south-east angle (the most prominent) advances just 25 feet before the range of the said north side: at its termination, Pall-mall is 66 feet wide (opposite to Marlborough House), and there are two houses in St. James's-street, which, looking eastward, front the chaussée—that at the corner (the St. James's-chambers) has a frontage of 47 feet, and Graham's Club 21 feet.

If the former only were razed, there would be an opening of 41 feet, in view from the other extreme of Pall-mall, and at that distance Lord Ellesmere's mansion would be hardly perceptible except from its altitude; but if Graham's Club were also removed, then the portion of the very elegant structure before referred to would form a not undignified nor inappropriate final block to the noble thoroughfare in contemplation, and the characteristic finish of just that portion of the edifice would seem to indicate, that the architect had some prescience of the opening suggested; for the ornate portion of the east flank extends but 26 or 27 feet.

The antiquated and mean character (for that location) of the houses, points out the expediency of modernizing, if not of clearing them away altogether. Should such clearance be made, one of the finest piazzas of the town would surround the Old Palace, which, in its turn, must undergo some transformation consistent with the progress of taste and the spirit of the time,—alterations which should humiliate the aspirations of the noble Sutherland Palace, and the still more florid pretensions of Lord Ellesmere's, which at present is beyond compare the most finished production of recent domestic architecture in London.

From the centre of Pall Mall no greater vista could be attained than an aperture of 41 feet might disclose, yet on nearing Marlborough House, the whole width of the Largo of the palace comes into the field of vision, and an opening of above 80 feet in front of Lord Ellesmere's (between that and the southward block of houses facing the Green Park) would reveal the park as far as Buckingham Palace, and the trees of the gardens, as a background (if you will excuse the Hibernicism) or a "sylvan vision."

QUONDAM.

#### THE RESTORERS OF LLANDAFF CATHEDRAL.

I HAVE only just seen—being absent from home when the monthly part arrived—your notice of my work on Llandaff Cathedral. I hasten, therefore, to correct, through your means, an erroneous impression into which an inadvertent expression of mine, in page 93, may perhaps have led you. I ought to have mentioned Mr. Wyatt as having been employed upon the restoration as well as Mr. Prichard. I believe that the work was commenced by the latter alone, and is now continued by them as joint architects.

The omission was a very pardonable one, as Mr. Prichard, being resident on the spot, and being in close communication with myself, was naturally much more in my thoughts; and indeed, speaking without professional precision, the work might be much more strictly said to be "under his superintendence" alone. Still, as Mr. Wyatt had a share in the design, and as his name is mentioned as joint architect in Mr. Cliffe's Book of South Wales, and in the Dean of Llandaff's paper, printed in the "Archæologia Cambrensis," I ought not to have made the omission.

I do not see that I have done Mr. Wyatt any wrong; but, in case he should be of a different opinion, I have taken this first opportunity of reparation. I have freely pointed out a few respects in which I do not agree with the restorers; but the work, as a whole,



is one which must add to the reputation of every one concerned.

With regard to the nave roof, my own conviction is very decided, that a flat ceiling, something like Peterborough, was at least designed; but I am quite open to be convinced to the contrary by yourself or any other competent person. EDWARD A. FREEMAN.

#### GIBBONS'S WOOD CARVINGS.

AFTER a period of repose, during which little was attempted in architectural or ornamental decoration to call for the exertion of the abilities of the artist in this branch of design, the architect and wood-sculptor once more were associated, and Wren (who possessed the eye of the artist with the knowledge of the architect) and Gibbons worked together. Pre-eminent skill and taste were displayed in these more modern specimens of the art. The dining-room was enriched with representations of the spoil and weapons of the chase; fruit, flowers, game, and fish, hung in rich arrangement and profusion on the walls; over the doors were splendid trophies of the seasons or the elements, the inter-panelling, borders of glasses, or the frames of pictures, were in perfect keeping with the rest, taken from the designs or pictures of *Snyders* or *Rubens*. In the decoration of the library Gibbons was equally happy in his choice of subjects; portraits of great men, clusters of gems, medals, and coins, trophies of music, musical instruments, and implements of art, here found place. Gibbons had a most masterly manner of grouping and pressing into his service objects no other person would have dared to venture upon; he was the founder of a new school, and he had studied only in that of nature; lace, nets, strings of pearl, shells, weeds, ferns, and flowers, streaming amidst fish, birds, sceptre, coronet, and sword, require, for a proper arrangement, no slight knowledge of and power to produce effect. His correctness in delineation was such, that when tested by comparison with nature, the feathers of a plover were found perfect, even to the number. Gibbons had a peculiar manner in drawing and composing his subjects in his trophies and most of his drops: he appears to have made a rough draft of some general idea in outline only, then carefully to have drawn one side of his subject within this limit, to have then turned the paper over, and, tracing the outline, filled it up in keeping with the other side. This is so perfectly visible in some of his compositions, that the same block of wood would work either side. This remark will apply to most of the drops in wood or stone at St. Paul's, Hampton Court, Windsor, and the Board Room at the New River Head: an open flower on the one side has the half closed or back flower on the other. Gibbons worked from a very limited variety of flowers, and these were of a nature to be easily and boldly worked. The greatest quantity of Gibbons's carving in London is at St. Paul's, all the flower-work of the choir, screen, and organ, is his, as also the greater portion of the stone ornament within and without: the four grand ovals in the stonework under the dome, and the two entablatures over the north and south doors, are wonderfully worked. It is known that many Flemish carvers were employed on the work, and their style of carving is very apparent, particularly over the window of the south and east outside work: the flowers are more various, but the effect is bad; they are worked to a nearer sight, but in their place, at the required distance, they form a heavy and confused mass: with Gibbons, on the contrary, the character of the relief was perfectly studied and carried out. The altar of St. James's Church, Piccadilly, is enriched by him, but an attempted reparation has destroyed much of its original character, for some Goth has caused it to be painted.\*

"THE CHIMNEY KING."—"THE CURE, CAUSE, AND PREVENTION OF SMOKY CHIMNEYS."—On the strength of an advertisement in our own pages, we purchased the pamphlets (as we expected to find them) so headed, and owe it to our readers to say that the whole affair is a mere catch-penny piece of quackery.

\* From the *Journal of Design*.

#### Miscellaneous.

TO REMOVE THE STAIN OF PORT WINE FROM MARBLE.—Some correspondents have asked us how to do this. We are not aware of any nostrum to be applied to the surface of white or veined marble which will extract port wine or other vegetable stains. We give a plan recommended by Mr. C. H. Smith, but this can only be put in practice by a mason or other person having convenient premises and implements. Suppose the article stained to be a slab, such as the shaft of a chimney-piece or top of a table; the only successful mode of procedure is to open the pores of the marble by rubbing it on both sides with sand and water, so as completely to remove the polish; then lay it, exposed to wind, rain, and all atmospheric influences, in a bed of clean, wet sand, from a quarter to half an inch thick, the sand to surround the marble up to its thickness, so as to be level with the upper surface: thus situated, the marble and sand should be sluiced with clean water two or three times a day, until the stains have quite disappeared, which probably will occupy ten or fifteen days; the marble is then to be repolished in the usual manner. White marble is so very delicate, and so easily stained, that great care is requisite in the above process, that the article on which the sand is laid will not impart an additional stain: the best material is new stone of any kind, or new deal boards.

IRON AND GLASS BUILDINGS.—Permit me to suggest that an exhibition of designs for *ferritineous* edifices (to coin a word) in the Exhibition of 1851 would be appropriate. There can, I think, be little difference of opinion as to the effect the great exhibition will have in giving impetus to the construction of buildings of a like character. I think it probable that Russia, at least, will desire to possess something like, if not more extensive than, our glass building. The emperor intends to visit it (it is said) in person. It is not beyond the compass of possibility that a structure of glass and iron will one day exhibit to the beholder the flora of the universe, as the great glass case will the works of art of the whole world. Perhaps, too, it will share, on the opposite side of the river, the attention, admiration, and the wonder of the visitor to the new Houses of Parliament. Raised on lofty arches, and towering higher than any glass-iron edifice yet constructed, such a building might be appropriately reared in the locality named. Be this as it may, I am desirous to impress THE BUILDER, and English architects in glass and iron with the "great fact" that there is wide scope for the display of artistic taste, skill, and genius, in this new kind of edification.—OPIFEX.

DIRECT LINE OF STREETS FROM OXFORD-ROAD TO SHOREDITCH CHURCH.—Your columns are often usefully occupied by suggestions for street improvements. I will briefly submit for consideration what for many years has been a favourite scheme of my own. We want a direct thoroughfare from the western to the north-eastern extremities of the metropolis, ending at Shoreditch Church; and without the necessity of threading the mazes of the City streets. An inspection of the map will show the wide line of Old Street-road, now comparatively little used, terminating as it does abruptly at the Charterhouse-wall, in Goswell-street. To get any farther westward is pretty nearly impracticable. To cut short all matters of detail, what is requisite is to carry on the said line of road through to Holborn, terminating, if possible, somewhere about Middle-row. Let us see what this would accomplish. A new approach to St. John-street and to Smithfield would be opened for hay and cattle, saving much traffic through crowded streets. Crossing St. John's-square to Clerkenwell, it would render the Sessions-house approachable and intersect the new street now forming from Blackfriars-bridge towards the north and north-western roads. Holborn-hill, Smithfield, and much delay would be avoided, shortening distance, whilst the Shoreditch railway station would become less inaccessible from the west. If we take a survey of the property along my proposed line from end to end we shall find it to be of as little comparative value as any perhaps in the metropolis. Make it accessible, and a vast length of good frontage would become available, at

an enormously increased value. And what a gain in public comfort and convenience to be enabled to pass in nearly a straight road, uninterrupted, from Oxford-street to the great outlets at Shoreditch Church.—H. T.

STREET OBSTRUCTION FROM GAS PIPES.—A case of some importance to contractors has before Mr. Bingham, at Marlborough-street, who thus states his decision:—In this case a contractor under the Western Gas Company placed several lengths of gas pipe close to the kerb-stone, east of the Opera House, preparatory to being placed in a trench to be excavated. The pipes projected three or four inches above the kerb-stone, and lay three or four days. The complainant stumbled over one of them, fell, and was bruised and endangered. A local Act of the 5th William IV. gives the commissioners power to authorise contractors to lay down gas pipes, and the 65th and 70th sections of the General Paving Act, 57th Geo. III. c. 39, tend to show that a penalty cannot be inflicted by a magistrate where work is done [as in this case by consent, or] to the satisfaction of the surveyor of the pavement; while the 36th section of the local Act reserves to persons suffering loss or damage from the carelessness or want of skill of any persons employed by the contractors the remedy of indictment or action. It appears to me, therefore, that a magistrate has no jurisdiction in circumstances such as the present, and the summons must be dismissed.

BRITISH ARCHAEOLOGICAL ASSOCIATION.—At a meeting, on November 27th, Mr. Pettigrew, V.P., in the chair, communications were received from Mr. Brent, of Canterbury, and Mr. Brockett, of Gateshead; also from Mr. J. Taylor, of Colchester, recording the discovery of an inscription upon a large stone found in the Roman burial place in his grounds near the town; from Rev. H. Jenkins, of Stanway, upon parts of Colchester Castle, which he considers to be the remains of a Roman temple, and a detail of excavations made near the castle, which he thought supported his views; and from Mr. W. D. Saull, describing some interesting stone circles and other remains which he had lately visited in Cornwall. Models were exhibited, and Mr. S. gave his views generally upon the subject. This produced a lengthened and instructive discussion which stands adjourned to the next meeting, December 11.

HORNEY AND THE SEWERS' COMMISSION.—A determined stand is being made by the rate-payers of Horney against the steps taken by the Metropolitan Sewers' Commission to bring them under the operation of the Sewers Act of 1848. A meeting was held on the 27th ult., at which a strong protest was unanimously agreed to, and funds subscribed, to enable a committee then appointed to resist the obnoxious measure.

NATIONAL BATHS AND WASH-HOUSES IN FRANCE.—In the Legislative Assembly, on Saturday last, a debate took place on a Bill proposed by M. de Melun for opening a credit of 600,000 francs for cheap baths and wash-houses for the poor. M. Raudot and M. Adelswaerd objected to the injustice of taxing the country for the advantage of the town. What the town populations suffered from was not want of cleanliness, but moral degradation, which made them sink far below the level of the inhabitants of towns in England. The House decided by 371 votes against 272 to proceed to a second deliberation.

LOW TENDERS AND BUILDERS' BANKRUPTCY.—A contractor has sent us some stringent and injurious remarks on Mr. Trengo's bankruptcy, and is very angry with us for not publishing them. We adhere, however, to our determination. He states that the debts amount to 70,000*l.* and that the assets to meet them are comparatively *nil*. To explain this would not be difficult, if many of the contracts entered into by the party in question were like one which is just now before us. Mr. Trengo had contracted to build four houses in the Gloucester-road, Bayswater, for Mr. Froom, for 2,800*l.* The work done when the stoppage occurred was valued at 800*l.* Fresh tenders were then sought to complete the carcasses, and the following were sent in:—

Glenn.....	£3078
Fry and Son.....	2849
Lawrence.....	2755

Comment is unnecessary.



**BOILER EXPLOSIONS.**—The echo of one of these explosions never dies away, as we have noted, till the noise of another accident of the same class supervenes. They go off in regular succession like funeral cannon. A fatal explosion occurred at Bradford on Wednesday week, and while the *Times* of the following Friday was with sorrow recording the circumstance, another was in the act of taking place at Halifax, "much more serious in its consequences." In the former case three lives were lost, but in the latter, thirty young people and children were buried in the ruins of a mill, and many of them killed and wounded. Inspectors, we hope, will be appointed, when some grand explosion takes place below the Parliament Houses while the Lords and Commons are in full conclave: nothing short of that, we fear, will do.

**ELECTRO-TELEGRAPHIC PROGRESS.**—Messrs. Hoe and Co., New York, have connected their counting-room in the city with their business establishment, two miles off, by means of Morse's telegraph, at a weekly expense which is said to be quite a trifle. The *New York Herald* anticipates that the telegraph will yet be used in all large manufactories in place of errand boys, and that the police of every large city will soon find it indispensable.—The British Electric Telegraph Company have arranged to commence operations forthwith, at Belfast, for crossing the channel to the opposite Scottish coast on the one hand and for running the same line on to Dublin on the other.—The Liverpool Dock Committee have under consideration a letter from Mr. Edwin Clarke, proposing to connect Holyhead, Point Lynas, and Great Ormshead, by electric telegraph, with Liverpool, in order to supersede the present imperfect marine semaphore.

**THE IRON TRADE.**—A combined movement of the magnates has taken place virtually for the purpose of sweeping away a number of the smaller masters in Scotland. Meetings have been held in London, Liverpool, Manchester, and Glasgow, to denounce the scrip system, by means of which many of the poorer and cheaper manufacturers in long-headed Scotland have no doubt been kept afloat by the merchants, and an unhealthy activity now excited at a time when lassitude and repose more naturally supervene on late exertions. Were continental countries, still to be net-worked with railways, ready to call soon for such exertions, the conspiring movement against Scottish scrip might seem to be more oppressive and objectionable than it really may be, but it is clear that there must be a pruning of superfluous branches somewhere, and of these by all means let the more unwholesome ones be first lopped off.

**ROYAL INSTITUTE OF ARCHITECTS.**—At a meeting on the 18th ult. Mr. C. Fowler in the chair, a paper was read by Mr. Wyatt Papworth, "On the Peculiar Characteristics of the Palladian School of Architecture," being a portion of the essay for which the silver medal of the Institute was awarded in Session 1848-49. At the following meeting, on the 2nd inst. a discourse "On Polychromatic Decoration in Italy, from the Twelfth to the Sixteenth Century," was ably delivered by Mr. Digby Wyatt, Associate, and led to a long and interesting discussion, to which we shall recur. At the same meeting Messrs. Ewan Christian and Christopher Eales were elected as Fellows from the class of Associates.

**THE LIGHT AND HEALTH TAX.**—It is said, we know not on what sufficient authority, that next session of Parliament there will be no proposal to repeal the tax on the part of Government, but that some changes of an important character will be recommended. One of these is to render permanent the present amount of tax on all houses now assessed—permitting the owners or occupiers to open as many new windows as they may choose to have, without any increase of charge; whilst another would apply to new erections, and probably to houses not now assessed, but which, from enlargement or other causes, may become liable to assessment hereafter.

**IMPROVEMENT IN BOULOGNE HARBOUR.**—The French Government has voted 70,000 francs towards the completion of the stone bridge now in course of construction at Boulogne, with the promise of a further sum of 80,000 francs during the next year.

**CROSSING CITY THOROUGHFARES.**—A correspondent suggests that a lighted subway with shops (which would soon pay expenses), should be formed under the street crossing from Fleet-street to Ludgate-street, and another from Bridge-street to Farringdon-street, as the thoroughfare there is really frightful and dangerous. A previous correspondent suggested the formation of light foot-bridges above the streets for such thoroughfares. Both of these plans have before been discussed in our columns. Enormous as is the traffic in omnibuses and cabs, waggons and bullocks, along Fleet-street, at certain hours, it is even more so along King William-street and London-bridge. There, too, the street is considerably wider, without even a halting-place in the middle, where it begins to be at the worst, near the Monument: there any tedious attempt to cross at particular hours is, indeed, most dangerous and fearful. The obviation of risk to the foot passengers in crossing such thoroughfares, in whatever way effected, would be a most useful work, and is every day becoming more urgently necessary. Could not something be done before the hubbub of next year takes place? Perhaps no improvement whatever will be more essential than this. We hope that the projected alteration of London-bridge itself, for behoof of foot passengers, to which we have already called attention, is not being lost sight of.

**COMPENSATION: BATTERSEA PARK.**—According to the newspapers, a jury was summoned last week at the Horns Tavern, Kennington, for the purpose of adjudicating on a claim for compensation made by Mr. Payne against the Commissioners of Woods and Forests, in respect to some land at Battersea-fields, about to be appropriated for the purposes of the park in that locality. Mr. Lawes attended on behalf of the Woods and Forests, and Mr. Bovill on the part of the claimant. Mr. Bovill, before the jury was sworn, claimed a sum of 94,800*l.* as a fair compensation for the value of the land about to be appropriated from his client. He subsequently consented to reduce it to 60,000*l.*, and finally consented to take 35,000*l.*, subject, however, to the adjudication of Mr. Tite. This was arranged without the jury being sworn.

**THE WATER-GAS IN AMERICA.**—A corps of gas-engineers or others interested in coal-gas companies, as our readers may recollect, some time ago reported on the water-gas alleged to have been discovered in America by a Mr. Payne, and, in the general opinion, both here and in the States, totally extinguished the alleged improvement. To this opinion we demurred giving our adhesion, at the time, not so much from any *a priori* assurance of the integrity of the discoverer, which, however, we had no particular reason, on the other hand, to doubt, but, as we stated, from our previous knowledge of the *animus* with which endeavours to obtain cheap and good gas in this country had been met by interested parties here. We have, therefore, ever since been on the out-look for some further and more satisfactory account of the process, which, it may be recollected, was to be fully tested by a trial of it, to take place at Astor House, New York. It now appears, from a paragraph in the *New York Express*, not only that this trial has been made, a trial of four months duration, and that the result is perfectly satisfactory, but that a company, with a capital of 500,000 dollars has been formed, under the name of "The Union Gas Company," for the purpose of carrying out the patent throughout the whole of the United States,—that ready purchasers for separate States have been got by spirited bidding at auction,—and that the capital stock is now at a premium of 119,600 dollars. The gas is to be sold "at one-fourth of the price of coal-gas."

**THE VALUE OF A PARENTHESIS IN A SPECIFICATION.**—A correspondent, who has lately made some repairs, sends the following extract from the specification, which he says is strictly correct, and asks whether under this clause the articles mentioned belong to him or his employer: the writer had calculated on removing them as his own. "The builder to use or take away all material coming down (except coppers) and the sundry articles belonging to — as per inventory inclosed for the sum of —." As the clause stands, he would seem to be justified in his view; but

there can be little doubt that it was intended to end the parenthesis at "inclosed," instead of "coppers." Probably in the original specification this will be found the case; and we have printed the inquiry as a reminder to our readers of the necessity for care in copying, and the value of a line. In the present case the mistake may apply only to a small amount,—it might equally involve a large one.

**MASONS' SHORT-TIME ON SATURDAY.**—Mr. Myers, builder, was summoned last week by a mason for nineteeen, of wages, deducted for short time, work being left off at four o'clock in place of half-past five on Saturday. Mr. Myers said that he did not desire to restrict the workmen, or deprive them of their short Saturday, and resisted only on principle, as he conceived that the masters ought to have had six months' notice, to enable them to finish current contracts, and to make allowance in those of future time. He had already sustained a loss of 500*l.* by being called on to bear the whole burden of this small difference of time, and if carried out, that loss would extend to no less than 3,000*l.* on the whole of his contracts. His defence was, that Friday closed the workman's week, and Saturday formed the beginning of a new week, for which the time employed only could be charged. Mr. Norton agreed with this view, and dismissed the summons,—a course, he considered, the most advisable for the men themselves.

**NEW MOVE IN LONDON MECHANICS' INSTITUTION.**—It is proposed, in a pamphlet recently published, to establish a "Birkbeck College," in the place of the present London Mechanics' Institution, with library and reading-room, lectures, and classes,—the last of these divisions further sectioned into a literary, a scientific, and an artistic section, comprising languages, &c., in the first; mathematics, chemistry, physiology, &c., in the second; and drawing, music, and book-keeping, in the third,—the instruction to be simple but comprehensive, and preparatory to matriculation at the London University. The subscription for each class, it is thought, should be from one to two shillings a month of four weeks, for instruction twice a week; for the lectures, one shilling a month of four lectures, to members and subscribers,—sixpence and one shilling each to the public; and for the library and reading-room, sixpence a month to students or members, and a shilling to the public. It is calculated (how correctly we will not say) that the institution would thus not only be self-supporting, but yield a surplus of about 160*l.* a year, independent of lectures and theatre letting.

**KENT AND SURREY TURNPIKE ROADS.**—On Wednesday these tolls, after a sharp competition, were purchased by Mr. Morris, agent for Messrs. Levy, the largest toll contractors in the kingdom, for 11,500*l.*, being an advance of 875*l.* on the sum realised last year.

**ARCHITECTS' BENEVOLENT SOCIETY.**—Mr. Mair wishes us to state, with respect to our notice last week, that although he was one of the first to move in this matter, the title of "Originator" belongs to the present Honorary Secretary, Mr. Turner.

#### TENDERS

For completing five houses for Mr. Payton, Derby: Mr. G. Hall, architect:—

Cooper, Derby (highest).....	£3,388	5	0
Moody, Derby .....	3,190	5	4
Wood, Derby .....	3,034	0	0
Thompson, Derby .....	3,000	0	0
Hall, Nottingham .....	2,940	0	0
Greene, Derby .....	2,925	10	9
Bradbury, Derby .....	2,915	0	0
Thompson, Derby .....	2,837	10	0
Nadin, Derby .....	2,832	8	0
Tyas, Grimsby .....	2,466	0	0

Architect's estimate, £3,068.

Separate tenders for the plumbing and glazier's work:—

Keeling .....	£282	8	0
Foreman .....	251	18	0
Crump .....	254	14	0

Printed quantities furnished to each contractor by the architect.

For erecting a chapel and schools at Upper Clapton, for Mr. A. W. Alexander: Mr. Emmett, architect. The estimates were made from two separate designs marked A. and B. Bills of quantities supplied:—

Bills of quantities supplied:—		
	A.	B.
Holland .....	£9,397	£7,097
Little .....	9,825	7,151
Ashby and Sons .....	8,714	6,000
Piper, T. and W. ....	8,452	5,800
Myers .....	7,316	5,618

\* "Can the London Mechanics' Institution be made self-supporting, and how?" Fushee, Mason-street, Corn-wall-road, Lambeth.



and dining-rooms . . . . .	3d.	"
Flock papers on grounds, and crimson flock on oak . . . . .	4d.	"
Bronze drawing-room papers . . . . .	9d.	"
Rich gold paper . . . . .	1s. 6d.	"
Ditto and Flock . . . . .	2s. 0d.	"

10,000 feet of gilt mouldings always in stock.

E. T. ARCHER, 421, OXFORD-STREET, LONDON.

January, 1, 1859.







# The Builder.

No. CCCCX.

SATURDAY, DECEMBER 14, 1850.



HE Basilica of St. Boniface, commenced at the private cost of King Louis, of Bavaria, in 1835, and well known to all who have since visited Munich, was consecrated on the 24th ult. In 1848 we gave some small illustrations of this building,\* but its size and magnificence are such as to lead us to give a larger view of the interior, with a plan and elevation.† St. Boniface is built on the model of the church of St. Paul, at Rome, which was burnt fifteen years ago. The entrance front presents an arcade of nine arches supported by eight columns of limestone and the side walls. The building is constructed mainly of red brick. Three doors of large size (the centre one nearly 30 feet high) are adorned with emblematical carvings by Glink.

The interior, which has a length of 262 Bavarian feet,‡ and a width of 124 feet, is divided into five aisles by four ranges of columns, thirteen in each, and ends in a semi-circular abais for the altar. The centre and principal division is 78 Bavarian feet high: the height of the side aisles is 43 feet. The columns are of pale grey marble; the capitals and bases white: the roof is open, and the panels formed by the principals and the purlins are painted blue and powdered with gold stars. The wood work is of deep red, with gilding. The high altar is approached by a flight of twelve steps. Below the pavement, which is of mosaic work, are formed vaults for the burial of the brethren of the Benedictine convent, to which the Basilica is attached. The connection of the buildings is seen on the plan,§ behind the abais. There is also a small subterranean chapel, in which to celebrate the funeral service.

The interior of the church is profusely decorated with frescoes, by Mons. H. Hess and his pupils, who commenced them in 1840. On the semi-cupola of the abais is symbolically represented the Church triumphant, by the figure of the Saviour in a glory, surrounded by the Virgin Mary, John the Baptist, &c. Lower down, are Saint Benedict, Boniface, Willibald, and others, who recall the propagation of Christianity, especially in Bavaria. Around the outer arch is placed the following text from Revelations:—"Isti sunt qui venerunt ex magna tribulatione, et laverunt stolas suas in sanguine Agni." Above are the lamb and the four Evangelists, painted on a gold ground. The lower part of the walls of the nave present twelve large frescoes and ten smaller ones, representing scenes drawn from the life of St. Boniface, the first apostle of the Germans. The series of large pictures commences with "The father of Boniface, saved from a severe illness by the prayers of his son, confides him to the care of the Benedictines," and ends with the deposition of the body of St. Boniface in the church of Foulda. The smaller pictures represent various episodes, which serve to connect the larger series.

Mons. Ziehlend is the architect by whom

this magnificent church for the Roman Catholic religion has been erected, and it is worthy of note, as an evidence of the king's impartiality, that Mons. Ziehlend is a Protestant.

## GOSSIP ABOUT PARIS.

The Count de Nieuwerkerque, Director-General of the Museums, has commenced a series of "receptions" at the Louvre (on Friday evenings), which have given much satisfaction to the artistical and literary world in Paris. It appears, by the way, that the walls of the grand gallery of the Louvre were settling outwards towards the quay, and that it has been necessary to shore them up and examine the foundation. All the works rendered necessary in order to prevent any further settling having been completed, the shores have just been removed.

The works inside the square saloon are making progress. The walls have been covered with sheets of lead, to prevent the passage of damp. The architectural decorations will be very rich.

A series of paintings in the chapel of St. Paul, in the church of St. Sulpice, Paris, commenced several years ago by M. Drolling, of the French Institute, are now completed, and have obtained for the painter much praise.

Some stained glass recently executed for the Church of St. Lawrence, by M. Auguste Galmard, is also highly praised; but from what we hear, it would be less so in England. However, we shall be able to judge of the designs without going to Paris, for M. Galmard intends sending the cartoons to the Exhibition in 1851: they will occupy about 1,300 square feet! M. Felix Pigeyre, architect, co-operated with him in these.

M. Pigeyre lately visited Constantinople, and, through the French ambassador there, presented to the Sultan, Abdul Medjid, a copy of his work, *Les Monuments de Paris*. We learn from the *Revue des Beaux Arts*, of which M. Pigeyre is editor, that the Sultan, in evidence of his satisfaction, has forwarded to the author a magnificent ring, set with brilliants.

The great portal of the Cathedral church of Paris, Notre Dame, is being adorned again with the statues of the twelve apostles, such as filled its niches before the first revolution. The figures are of stone, of large size, and have been executed in the atelier which has been formed in connection with the cathedral, by the two architects to whom the restoration of the building is entrusted.

## CONDITION OF WESTMINSTER BRIDGE.

ANOTHER year has nearly passed, and this crazy old structure still remains an eyesore, and, what is even worse, a hindrance to the traffic of our noble river. A Bill was passed last year for the construction of a temporary bridge, which it was calculated would occupy fifteen to eighteen months building. No step has yet been taken, and therefore it is evident that two winters must elapse before another thoroughfare can be obtained. What is most to be dreaded, perhaps, is a severe frost: it is quite true, by the removal of London Bridge, there is not much to fear below Westminster Bridge, but, inasmuch as that bridge is for the most part blocked up, there is every thing to fear from an accumulation of ice above; and it is also in evidence that in such an event the greatest mischief is to be apprehended. One would almost imagine it was purposely left to be swept away by the current, and thus save all trouble in the matter. By Mr. Barry's evidence before the last committee, he seems desirous of its being rebuilt on its present site, provided three conditions can be complied with, viz., width of 100 feet, a height of 18 feet for water-way, and the bridge to be perfectly level; but he adds, if these conditions cannot be complied with, its removal farther north is indispensable. Now it seems pretty evident these conditions cannot be complied with: the Navigation Committee require a headway of 25 feet. The increased width would also be objectionable, as, if adopted, the promenade of the bridge would be brought so close to the Speaker's residence, and at so low a level that the comfort and privacy of a dwelling would be totally destroyed; therefore, following Mr. Barry's reasoning, it would

seem that the bridge must be built further north. There was a recommendation in our paper some time since, that it should be carried across by Whitehall wharf, in Cannon-row, that is, to the south of Richmond Terrace; and it was further suggested, by widening Charles-street, and the removal of two or three houses in Duke-street, that an excellent thoroughfare would be obtained to St. James's Park, and thus to the district of Belgrave: by this plan Great George-street and Parliament-square would be relieved of an immense traffic, and the immediate approaches to the Houses of Parliament rendered more free from the danger attending the constant clash of carriages in that vicinity. But whether this plan be adopted or not, it surely is high time something was determined on: it is not just to keep the inhabitants of the neighbourhood in the state of uncertainty they have endured for the last three or four years. The witnesses examined before the several committees are men of the highest professional attainments, and surely it is little less than a mockery and a waste of valuable time to get together such evidence and treat it as though it were undeserving consideration. In the face of such evidence to pass a Bill entailing an outlay of 20,000*l.* for a temporary bridge is, to say the least, most extraordinary.

## A HISTORICAL ESSAY ON TASTE.\*

In approaching a subject so varied and extensive as the Origin and Progress of Taste in Art, now principally in Architecture, it would not, I think, be unbecoming to request indulgence for the errors which may probably be made by one who does not belong to the profession, but who, nevertheless, perceiving in architecture a great and beautiful art, is desirous of devoting attention to it, for the sake of improving, by its means, his own knowledge and understanding of the principles of art. These—in nearly all the occupations of the muses—these fundamental principles are, in all arts, nearly or precisely similar. It is from the right comprehension of them, to anticipate, that taste, as we understand it now, may be said mainly to arise. In architecture, in poetry, in painting, in sculpture, it is alike necessary to observe those axioms of construction, execution, and adornment which have been declared by common concurrence to be inviolable, and without observance of which it is impossible to produce a complete work. I say that unity of conception, regard of general effect, justness of proportion, constructive solidity, and the like, are indispensably necessary to the creation of anything which, by the air of nature it shall wear, shall communicate a just idea to the mind, answer the imagination in our presence, or haunt the memory in our absence, with the shape, the colour, the sense, or sound of beauty, or with all of them combined. To speak generally, the violation of any of the primary principles would show an incompleteness or absence of taste. If we consider the subject more closely, taste is the result of a discriminative power of the intellect, which decides, in several or more objects, and consequently ideas of them, on that which most perfectly answers to her idea of, for instance, beauty,—the effect of certain constituent causes, such as proportion, harmony, &c.; to her idea of, for instance, grandeur resulting from size, height, and the like,—an idea, I think, in some degree natural to man; if so, doubtless implanted by the Creator, and showing that the print of the Divine hand is left as well in the mind of man, as in all that it moulded, and it moulded all. It is probable, however, that the idea exists naturally in a very slight degree—the mind improving it to an observable point by its own almost unconscious observance of nature. Some wholly reject the notion of any innate ideas; the learned are divided on the point; the definition, too, of abstract notions is at all times difficult.

To resume. According to the experience of the mind by observation, arising from the multiplicity of objects observed and compared, will the power of justly discriminating be developed, always provided that the principles of art, which are natural, be allowed to guide; and the understanding so educated will ac-

\* Read at meeting of the Architectural Association, Friday evening, Nov. 15.

\* Vol. VI. p. 547. † See page 594.

‡ The Bavarian foot is = 0.857 English foot.

§ For this plan we are indebted to Mons. Kreuter.



quire, as it were, a wisdom with respect to form, colour, and all other external attributes of nature, and, imitatively, of art. Whether any may justly argue that that quality, which we call taste, originally existed as such in the human mind, is, therefore, more than doubtful; but there was doubtless innate in it an admiration of the works of nature, a sense of connection with created things,—man being, in fact, himself but a link in God's chain of creation; and it is but according to experience to suppose, there resulted a preference for this or that form, just as the mind was more or less charmed by the images transmitted to it through the senses.

Thus even with respect to the works around us, you would find in men of different climates, or accustomed to different scenery, a diversity of taste: he whose native land is a very garden adorned with an endless variety of foliage, rife with flowers, intersected by rivers, and also thronged with graceful animals, and birds of all brilliant hues and modifications of song—such a man, I say, would probably possess a taste for that which is florid, rich, vivid in idea; his feeling would be rather for the beautiful, than for the grand; he would prefer that which charms to that which astonishes;—the fault, perhaps, of his taste, would be an inclination towards redundancy; the advantage of it, a sparkling gorgeous fancy; a bright imagination; a magnificent versatility of thought; and, perhaps, a capacity for detail. On the other hand, a man accustomed to the waste sublimity of the desert, would possess a corresponding taste for extent, even for boundlessness; an inhabitant of a mountainous region would admire what is lofty, aspiring, towering, free; the capacity of the two last would probably be for generalising; and with respect to what is free, we are well aware that both Arabs and Swiss are noted for their devotion to liberty. A maritime nation would prefer the bold, strong, extensive. Such would be the taste of each of these with respect to nature; but it is curious to observe, how, when man came by degrees to express his mind in buildings, he appears, in certain respects concerning art, to have sought that which he had not in nature around him; as though in some lands he had said—I have no mountains—I will build them; I will raise something that shall overawe its own creator—something vast, by which I myself shall be astounded—and so, further, according to the excess of the designing mind above its fellows, was the amount of awe and wonder inspired among them. But this subject will further develop itself as we advance, and, having premised thus much concerning taste in general, I will proceed to consider it more particularly with respect to individual nations. Of the earliest building of the world, such as the ark, probably by no means elegant, or the tower of Babel, we should think a huge, unsightly mass, possessing no element of the sublime, but that of size, it is not necessary to dilate. Whether the latter was really built, as we have seen it drawn, like a huge snake rising on its coils, curling up to heaven, and most industriously lifting the nations to the stars, is of little moment; but it was probably built of a kind of brick, cemented with the bitumen that abounded in the Babylonian territory; and as the object was to build to heaven, it would no doubt be raised in a great hurry, and with little regard to design. It is not *here*, then, we shall look for taste. In passing, we might observe, that the scriptural story is strongly resembled by the heathen fable of the giants piling Ossa on the top of Pelion to dethrone Jove. But as we shall have occasion to return to Babylon, let us pass into Egypt, historically more ancient. Here we find the sublimity of magnitude extraordinarily developed; a massiveness that is suggestive of eternity, and an imitation of nature in many respects unbounded. Here are the mountainous pyramids; here is the Sphinx, whose head only now rises above the surrounding deserts, once thronged by its superstitious worshippers. Here are the palaces, where their kings dwelt; the temples where their priests deceived; the tombs which have given up their dead for the daily inspection of the curious in modern museums, where death itself has become the subject of impertinence.

The sphinx was originally a huge block of stone that stood before the pyramids, and it

shows the *grand* taste of the Egyptians to have converted it into the wonderful figure which still remains. The taste of the Egyptians was evidently for a solid, gloomy grandeur; they delighted in massive pillars, in dusky chambers, in broad effects of light and shade, in dark labyrinthine walks, in cavernous edifices guarded by gigantic recumbent figures, or the huge forms of deities, gaunt, awful, oppressive. Their observance of nature was great: it is asserted by some that they derived the fluted column from the simple idea of reeds bound together at the top—and their sacred language is an endless succession of the forms of birds, beasts, fishes, and reptiles—in fact, we may say, they wrote in beasts and reptiles: many of their vessels and ornaments are evidently imitated from nature, with great quaintness and versatility of design; but in all they seem to have practised an almost disproportionate solidity of construction. Theirs was eminently an architecture of symbolism: their principal buildings being for sacred purposes, they seemed determined to have written the story of their creed in every pillar, every stone; and by that means to give their designs, as it were, an actual, positive sense—to make them a species of embodied poetry—so that every man on seeing the temple, would at once be able to read in its form, proportion, number, and colour, the scripture of the god to whom it was dedicated and belonged. In their flat country, we perceive that they made their edifices mountainous; that that regard of death with which their religion inspired them, extended a sobering influence to their works; and certainly some of their vast temples could have derived no extra cheerfulness from the fact that they were only magazines of mummied crocodiles and cats; and, finally, to repeat, we perceive that their architectural taste was for a gloomy sublimity of symbolism, and that if we were to seek a symbol to express it, we might call it a sarcophagus. With respect to literature, at which I shall occasionally take the liberty to glance, we have, so far as concerns the Egyptians, small idea of their taste: their painting, such as it was, and their sculpture, wonderful as is the latter in respect of manual skill, appear to have existed only as subordinate aids to the architect, and are simply entitled to share in the above general remarks.

A most ancient, curious, and at one time mighty people, were the Chaldees: a tribe of people formed, probably, from the conflux of many others in those well watered plains, who inhabited the districts of Babylon and Nineveh, and who boasted a dynasty descended from Nimrod, according to some, the same with Ninus and Belus,—the god of the tower of Babel. It is probable they had some connection with the Egyptians. The monuments of Nineveh, recently discovered, wear certainly in many respects an Egyptian appearance. If you examine them, you will observe a similar mystical taste,—a profound disregard of perspective, and a great aptitude for expressing things by signs: thus, a castle sometimes bears a marvellous resemblance to its namesake of chess; a distant river is represented by very lively fish in single file; while, to illustrate the country beyond, you will probably find several indigenous trees appearing to grow out of the fishes' backs. The carvers of the Nineveh marbles seem, nevertheless, to have had a feeling after truth. In the treatment of animals, they may be said comparatively to excel: the lions in the lion hunts are full of vivacity and expression, although sometimes rather symbolical (I mean in size) in the teeth and claws. To prove what I say concerning the truth of these lions, you will find depicted on the tips of some of their tails a claw, whose existence had of late years been disputed, but it is now again established. The procession of captives and beasts on the obelisk is in several respects, and considering its probable antiquity, admirably executed.

To turn to history, we are told almost incredible wonders of Babylon. The walls were 300 feet high, 80 feet thick, built of brick and bitumen; flanked and protected with numerous towers, adorned with a hundred brass gates, and sixty miles in circumference. We are told the Euphrates was enclosed by piers in a straight canal through the city; that

there was a bridge of huge stones fastened together with lead, and bound with iron chains: to the west stood the tower of Belus, or Babel, enriched with an infinity of spoils and golden images; in the New Palace, Nebuchadnezzar, it is said, had raised a hanging garden, on sub-arched terraces, to the walls, to gratify a Median wife, who, having come from a wooded and mountainous country to one which consisted of a vast, flat plain intersected with streams, and interminable rows of willows, missed, in accordance with what we have observed of natural taste, the beauties of her native land, and desired them reproduced. Now, if all this account were true, it would show that the Babylonians had not only a taste for the sublime, but also for the beautiful; and, besides, had attained a pitch of excellence in the execution of art. Babylon having vanished from the earth under an irresistible doom, we have not even a trace of it left whereby to judge; but it is said to have been about the size of Nineveh, and Nineveh has been proved, by the discoveries of Mr. Layard, to have been sixty miles in circumference,—the exact girth, under the expression of a three days' journey, assigned to it in the book of Jonah. We will then suppose a considerable, at least some portion, of the Babylonian account to be true; and will thence observe, that their taste was kindred to the Egyptian; they might even improve themselves by maritime influences at second hand, having conquered the great and industrious city of Tyre, and carried off all its works of art; and they might, too, have turned to good purpose the genius of the captive Jews, educated by Tyre. Their buildings appear to have been raised on huge platforms, in graduated masses, the Pyramidal appearing to be the prevailing form of general outline. The bulk of their walls certainly seems proved by modern discovery; and we have also good reason to believe they had considerable power to work in metals. Altogether their taste was for the great and astonishing, for vastness of design, and solidity of execution.

Persepolis is suggested by the consideration of Babylon. Certain discoveries have been made concerning it, and it appears, in accordance with the ruin, to have been built on great platforms, with elevations of huge pillars, still on the graduated principle. It is also probable that the chambers of the palaces were similar to those already discovered at Nimroud, thickly walled and surrounded with bas-reliefs. Generally of Egypt and Assyria it may be observed, that their taste, although not unguided by a knowledge of proportion and arrangement, was for the expression of power, for great cost, and works the result of almost superhuman labour. They cultivated geometry, astronomy, music—though the proportion of harmonic sounds was not discovered till long after by Pythagoras,—astrology, alchemy, and magic,—but everything was rendered subservient to priestcraft. They had also an idea of colour; but as they attained in it only to brilliancy, its effect was certainly more gaudy than harmonious, and must have caused a strange contrast with the grandeur of their other works.

We have little record of Persian architecture; but there is a singular account of the ancient capital city of Ecbatana. It is said that Dejoces, the king, built it on a hill, with seven walls, but they were so disposed, rising one within another to the summit of the hill, that the ramparts of each wall should show above the one in front. These elevated portions were each painted of a different colour, so that the appearance in the distance would have been, as it were, of a horizontal rainbow. In this we observe principally a taste for effect and display. This taste was very strikingly developed in the Persians: their idea of magnificence and pomp displays itself in many particulars of their history. Their literature, like that of the other nations, was chiefly mystical and symbolical. In religion they were fire-worshippers, performing their rites in the open air, until Zoroaster ordered the fire altars to be enclosed in temples, of which there were three kinds,—the first mere oratories, where the sacred fire was kept in lamps; the second public fane, where the fire was kept, like that of the vestal virgins at Rome, continually burning on altars; the third, the grand abode of the arch priest,



visited only at certain seasons by indispensable law, such as bound the Jews. The chief temple stood in the city of Balck till the seventh century, when, on persecution by the Mahomedans, the followers of the Magi fled to Carmania—whither, no doubt, they carried their arts and their taste—and raised another temple. But you see that their worship was purer than that of Egypt; and it is not unreasonable thence to argue that their ecclesiastical buildings were less the subject of gross ideas. Their religion flourished among the Parthians, Bactrians, Chorasmians, Sacans, Medes, and other nations: from this we may guess somewhat at the temple architecture—in fact, the architecture of these nations; for it is evident that the grandest efforts of the art have been in all ages dedicated to the purposes of religion, from the time of Osiris to that of the Divine Redeemer. The Indians, whose original doctrines appear to have been borrowed from Zoroaster, raised in old time many curious and striking edifices, which appear to be better understood by inspection of drawings than from description; but they possess, many of them, a bold and swelling outline—perhaps, in some, a disproportionate width, and, besides, a singular elaboration of detail—not uncommon among semibarbarous nations. There is also a great massiveness, even heaviness, about them which we have found in the buildings of other Pagan nations; whence we can only suppose that the taste of the Indians was much affected by their lifeless creed. This heaviness is striking in Pagan architecture, while the Christian Gothic has the very opposite characteristic. Concerning early Arabian taste—to leave, at present, the Sarcenic—there is little to be said: it is probable there was little of it, so far as architecture is concerned. The religion of the Arabs was Chaldean: they cultivated poetry, possessed a brilliant and versatile imagination, and supported a good moral doctrine.

It is impossible here to investigate the taste of the Phœnicians or of the Ethiopians; but there was nothing in either very dissimilar from that of contemporary nations. In fact, we find the extraordinary and grotesque religion of all these ancient nations to have greatly shackled their arts, and to have given them, with a taste for pomp and grandeur, a sort of necessary absurdity of purpose. The Jews were more ancient than all; but from their religion it was necessary to reserve them to this place, on account of certain remarks generally applied to the rest, in which they would not be included. Being for many centuries a pastoral and nomad race, they appear to have had little opportunity either for the acquisition or the display of taste. The mention of their name immediately suggests the Temple of Solomon. The king's predominant taste, whether or not suggested originally by a far higher feeling, was, according to oriental nature, for magnificence; and we find that he built his own palaces with a profusion and splendour of ornament little inferior to that displayed in the Temple. That building seems not to have been striking either with respect to its proportion or its size: it was somewhat Egyptian, and the adornments of it were Tyrian. We may hence assert, while, in the latter remark, the taste in art of the Tyrians is suggested, that native taste was but little among the Jews, and that they were in respect of taste at all, far behind either Egypt or Assyria. They had, however, a great natural genius, and their want of taste arose rather from their long pastoral habits above referred to, than from any natural incapacity. Time afterwards did for them, and now does, more than he has done for any other race. In our days, the leaders of taste in several arts, of which we will only instance music, are Jews. Of their ancient literature it may be remarked, that besides its inspired character, it affords a perfect model of sublimity and power, not to speak of wisdom and grace: numberless instances might be brought forward to prove this, but it is sufficient to point to the description of the war-horse in the book of Job.

We have now traced the varieties of taste among the earliest nations of the world: we have seen that the Egyptians loved the huge and massive and heavy; that the Assyrian taste was similar; that the Persians, Jews, &c. favoured the more showy and magnificent: we have found it grand in all. Hitherto, then, the charac-

teristic of taste in art has been GRANDEUR. But in none have we found the *pure, the chaste*. We ask for it: the Sphinx and the winged bull shake their heads, but being pressed, nod abashed to Greece. It is to Greece, then, in order that we may add to the taste we have already acquired that purity which is indispensable to a right taste—it is to Greece that we must sail.\*

H. T. BRAITHWAITE.

#### THE GENEALOGY OF THE FINE ARTS.†

A COMMON error of painters and sculptors is, to take those subjects for illustration that have most powerfully affected them, or that they deem most beautiful in history or fiction, without considering whether painting or sculpture be a fit vehicle for conveying them, or whether the subject be at all adapted to the art. Many first-rate subjects, from which perfect poems have been, or might be, formed, have no pictorial elements in them. A picture I once saw, attributed, I know not how justly, to Fuseli, of Hamlet and the Ghost, an utter failure in effect, evidently owed its failure to this cause. The error of the artist lay in his choice of subject. There was nothing in it, or to speak with precision, not sufficient in it, to make a picture.

If the view of art I have exhibited be correct, it will not be uninteresting to inquire into its present state, and how far its resources are drawn upon in the great work of general education.

A good deal of what is either baseless or unintelligible, has been written and spoken on the question of the comparative merit of the old and modern masters in art, particularly of painting and sculpture. The arts, I believe, are progressing; we are in advance of our predecessors upon the whole; yet the march has been a fluctuating, not an uniform one. To establish the truth of this, it is not necessary for us to prove that the present race of artists in England or Europe, are superior to any past one. Still, I believe, it could be shown, that we, in England, have men who, in their respective departments, were never surpassed, if equalled. Certainly there is no gulph between us and the excellence of the old masters, which we moderns cannot pass. To maintain the contrary is unphilosophical and absurd. The monopoly of the grand historical subjects, which the first great masters of Italy naturally made, gave them a great advantage over all subsequent ones. It is possible that the best conceptions of many such subjects may have been attained at once; and though an after artist might be capable, on any one of these subjects, of equalling his predecessor, yet, if he could not go beyond him, he had done nothing—the first work would always hold its place. I have no doubt that the grandest possible conceptions of some of the most celebrated subjects of sacred or profane history, have been thus arrived at: perhaps the “Transfiguration of Raphael,” for instance, the “Last Judgment” of Michaelangelo, or the “Last Supper” of Da Vinci. If so, if no artist can go beyond them, there can be no other “Transfiguration,” or “Last Judgment,” or “Last Supper,” of any value to art. In other subjects of painting, or sculpture, landscape, single figures, or portraiture, there is ever room for new competitors; and there, on even ground, the modern master may contend with the ancient. About the colour of the old masters, we can say little. The pictures having gone through so many transmigrations, have been so acted upon by time, weather, climate, and other destructive agents, that probably all original hue is in most instances lost.

With respect to criticism: we now look at works of art more æsthetically, and less technically, than we formerly did, and so far have moved in a right direction. A work should be examined with respect to every quality, ere we can estimate truly: if we look at technicalities alone, we bribe genius to become mechanical; if we look æsthetically alone we become mere theorists, and are apt to lose sight of all rule and principle. So far we have advanced; but the necessity for applying art to the purposes of general education and refinement, as I intimated in my introductory remarks, and even its right to a place in the course of study which self-teaching

men adopt, is scarcely recognised at all. Those elements and principles which constitute a pure taste in art, where are they taught? What has been done to facilitate the study of the fine arts, and to cultivate the natural perception of, and feeling for, the beautiful? While every means has been used for the advancement of general knowledge, and the spread of scientific lore, among workmen and others, by schools, reading-rooms, libraries, and so forth, what has been done for the advancement and refinement of public taste? London, I know, has of late years witnessed the founding of professorships of painting and architecture, and we have a Government school of design, besides our metropolitan and provincial exhibitions: but we want a system of general instruction in the leading principles of art. We want cheap prints as well as cheap maps and books: we have low priced ones, but not good ones;—we have cheap editions of literature, why not cheap casts and engravings to give the people generally some idea of the great achievements of art? Fine art has hitherto been considered as ground too sacred for the feet of the million, as if there were an elect of taste who could alone appreciate and enjoy the beautiful; and while the upper classes would have life “thrice winnowed” for their use, they neglect to provide the means of assisting the humbler classes to their natural and rightful pleasures;—to the participation in those enjoyments which were designed by a bountiful Creator for all. Education, to be fully efficient and complete—may, to be even worthy of the name—must correct this; scatter every where the seeds of a correct taste in art, and diffuse its sublime influence universally.\*

Whilst the inspirations of Shakspeare, Tasso, and Goethe, are rooted in the very depths of feeling, and refine and exalt the soul,—while music is felt by the most obtuse,—what is the power of the artist and architect? They are magicians also, but their wands are broken. It must be mainly owing to an erroneous view of art, and a false reception of it, that it has hitherto comparatively failed in its object. The works of Phidias are as much adapted to the refinement and improvement of the mind as those of Homer, and would shed as much influence on the present generation, as they did on the public of Athens, if properly studied. Why should not Palladio, Raphael, and Michaelangelo, exert an influence on society at large, as well as the popular novelists and poets? Why should not works of art be made the subject of general education? Art fails in its mission if not felt and understood by all. Works of art have a revelation to the untutored soul of the peasant as well as to the cultivated intellect of the prince. The beautiful was created for all, and all men have faculties to feel and appreciate its influence.

But our towns and cities have not been built in accordance with these views: think of the immense districts of some of our larger towns, where, while nature is of necessity excluded, art has not been called upon to contribute a single charm!

But the deficiency is not confined to the lower classes:—The upper ranks are wanting. How many persons filling the chief offices of the state, and moving in the highest walks of literature, are comparatively ignorant of the principles of art! How many pretending to the utmost polish of manners, while neglecting the most powerful agent of refinement! How many young ladies, who think, when they have added to the accomplishments of singing, dancing, and music, that of being able servilely to copy a drawing, that they have attained to the beau ideal of humanity! Now, I venture to assert, that a knowledge of art, and an appreciation of the beautiful, are qualifications peculiarly adapted to the structure of the female mind, and as necessary to the development of the higher qualities of the sex—to the cultivation of the entire woman, as to the full nature and capabilities of man. Neither are women without the faculties for practice. Females have exhibited artistic talent in all ages. Cressilla, a Grecian sculptrix, was among the competitors who vied in decorating the temple of Diana at Ephesus; and such was the result of the competition, that her works

\* To be continued,

† See page 579, ante,

\* The efforts of the Art-Union of London in this respect must not be forgotten.



were accounted next in merit to those of Phidias and Polycletus.

Talent, however, for successful practice few can possess; but knowledge of art all may acquire, and I am convinced the time is not distant when an acquaintance with the principles of taste, and a high cultivation of the sense of beauty, will be deemed essential both to the lady and the gentleman.

There is a proneness (and perhaps, among other causes, it lies at the root of the evil) to regret the past, as if the age of the poetical (which involves the feeling for the beautiful) was gone by: it is by too many supposed that the development of science is destructive of the material for poetry; that, as we unveil the secrets of nature, and attain to a comprehension of her hidden mechanism and forces, we strip her of her charms, and dispel the magic of her power. Such persons want a deeper insight into nature, and broader views of the poetic. The supposition that there is no poetry in the present, that the state of things at this day is inimical to its development, is narrow and unphilosophical. Poetry and science may exist together in perfect harmony, the latter innocent of the destruction of a single grace or embellishment of life; and not only are they reconcilable, they may even become helpmates to each other, for it may be asked whether the creative faculties are not more expanded by the mind attaining to higher views of the laws of the universe—whether it be not more satisfactory to the imagination to see facts, apparently different, brought under one common law, than to be obliged to seek a special cause for each effect. Parnassus is not alone the holy ground of genius. There may be as much poetry in a railway, a viaduct, or a telegraph, as in the Parthenon, the great Pyramid, or Temple of Karnack; and more in the daily and humble life of the cotter, than existed in the hall of the feudal baron. Anything that exhibits man's power, or results from an expansion of his nature—whatever is connected with the great questions of life and progress—is poetical. Poetry is the very essence of nature; "it is the breath and finer spirit of all knowledge; it is the impassioned expression of all science." Its chief hold is the heart of man, and he is the same mysterious being, "fearfully and wonderfully made," that he ever was, and while the heart can feel poetry must endure: "we are" still "such stuff as dreams are made of;" the higher we rise in the scale of intelligence, the wider for us becomes the sphere of the poetic, and the power of the poet; for the domain of poetry is as boundless as the universe.

At the same time, we have a right to call in the aid of the past to enrich the present; and, in that right, we have an advantage over all foregone nations and times. All Egypt, Greece, Rome, and Etruria are ours; but we must use them with wisdom and taste. What we glean from them must be rightly understood, and well digested in our own minds, before being applied to the demands of the present. Archaeology is valuable so far as it sheds the beauty and wisdom of the past on the present, and no further. The legitimate office of the antiquary, as I take it, is that of pioneer to the architect and artist, in exploring the remains of antiquity, and examining the legacies of Time. The Beautiful slumbers in the ashes of the past; buried under centuries of fallen ruins and rubbish; and all that feel an interest in the advancement of public taste will delight to assist in its resurrection, that its spirit may be infused into modern art. But we should linger over these relics only so far as they are instinct either with beauty or truth: anything beyond this—any worship of the past only because it is past, is idolatry: any lifting of the veil of the bygone time, merely for the gratification of curiosity, is unworthy of human intelligence.

SAMUEL HUGGINS.

**EXAMPLE TO WORKMEN.**—The yarn dyers in Glasgow, about 400, have had a series of lectures delivered by Mr. Napier on the use of chemistry in dyeing, which have been exceedingly well attended: they have also had candidates for prizes awarded to the best essay on the subject; and are organising a library among themselves. The movement has originated among the operatives alone.

#### ARCHITECTURAL INSTITUTE OF SCOTLAND.

THE first annual general meeting of this Association was held, in Edinburgh, on the 28th ultimo, the Earl of Morton in the chair, when the officers for the current year were elected, and the report of the council, to which we have already alluded, was received.

The Chairman having addressed the meeting, Dr. Grant delivered a long and interesting discourse. In the course of it he said,—"The finest work on canvas is comparatively soon lost to the world, but architecture has raised monuments that have defied for ages the wasting hand of time—which have resisted the ravages of war and the destroying violence of barbarism, and stand forth to this day proud relics of bygone years, guiding the taste, and ministering to the enjoyment, not of one only, but of a thousand generations. It were needless to say in how many ways this feature of the architectural art invests it with interest beyond almost every other. Hence it is that, in the study of it, we can start with peculiar advantages, for it admits of a handing down in some measure of all the improvements of the art from generation to generation, even as general knowledge is handed down in written language. Hence it is that, even as we have preserved to us the immortal and invaluable literary productions—the poetry and eloquence and philosophy—of enlightened Greece—so we have also the Temple of Minerva, exhibiting the very essence of Grecian taste, still crowning the Acropolis of Athens, and attesting the glories of the age of Pericles;—that, as we have the songs of the Mantuan bard, and the classic eloquence in which Tully spake, we have also the Pantheon, a glorious relic of the Augustan age, and the columns and triumphal arches of the empire, the remains of Roman grandeur that still adorn the city of the Cæsars. How wide, then, the school in which the art may be learned! How extended the field of study! How varied and numerous the models to chasten and improve the taste!"

After reviewing the works of various periods, the lecturer said,—"As to the progress and state of architecture in Scotland, I have already said that there exist here various ancient productions of art indicating great skill and taste, but they consist chiefly of ecclesiastical edifices, and few, probably, if any of them, were the work of native artists. Attention to the art in modern times is of recent origin; and though I cannot speak but with respect of the spirit that has at length been awakened, and of the talents and successful efforts of those among us professionally devoted to the art, I fully concur with the originators of the Institute in the conviction they express, that the art 'has not attained that position in the estimation of the people to which it is entitled.' The remark, I believe, will apply to other parts of the country, and to other countries of Europe. Indeed, it seems to be too much forgotten how very far the modern world is behind the ancient as respects the principles of taste, and those productions of art which form the best and highest criterion of what is properly termed civilisation. In regard to these, we are but children as compared with various refined nations of antiquity. Look at their works in every department of human genius!—The study of the classic authors of Greece and Rome—those master spirits—is universally prescribed as the best mode of disciplining our minds, unfolding our powers, forming our taste, and training us to correct thought, as well as the proper and elegant expression of it. The specimens of their sculpture that have been preserved stand unrivalled; and from their monuments of architecture, in like manner, we are content to learn the first principles of taste and skilful adaptation. They embody principles that are imperishable, and from them are deduced laws whose authority is everywhere recognised. The present, indeed, though in many respects a wonderful—an industrious and plodding—is a dull and unimaginative, and withal, perhaps, rather a conceited generation. We certainly far excel the ancients in some of the appliances of external comfort, and in many of the material enjoyments of life, and our knowledge of natural science, and our discoveries, have been carried to an extent most creditable to modern effort, and of which the ancients could not

even form a conception. But we should never forget that a knowledge of taste and art is an essential mark of high mental effort and cultivation, and that if we would study these with success, we must, with all our pride and self-sufficiency, be content to sit at the feet of ancient masters. Our progress as yet has been nothing, as compared with that made—I do not say by Greece and Rome—but even by some nations that have almost passed away from remembrance."

In his conclusion, the Doctor expressed a hope, in which we unite with him, that the professional members of the Institute,—the Fellows,—will remember that they are brought here, not as to a field of jealousy and angry contention, but to a scene of united and social effort where they are all to regard themselves as devoted to a noble art, and everything is to be eschewed that would degrade their science to the level of a trade—where lofty aspirations are to be cherished, and manly and honourable rivalry alone is to prevail—a rivalry worthy of educated and enlightened men.

#### SIGHTS AND SCENERY.

At the *Portland Gallery, Regent-street*, a very interesting Diorama of the Ganges and Calcutta, painted by Mr. T. C. Dibdin, has been opened, and deserves a visit. It commences from the point at which Mr. Grieve's admirable Diorama of the "Overland Route" terminates, namely, Calcutta, of which it gives nearly every building: thence, proceeding across the jungle to the country of Orissa, the seat of Indian idolatry, the spectator is taken to the black pagoda by moonlight, and thence to the temple of Juggernaut at the period of the great annual festival. The second part includes the Ganges, the city of Benares, Chunar, Allahabad, and Taj Mahal at Agra. The greater part of the Diorama is beautifully painted, the foliage and trees very boldly touched in. Mr. Buss has aided with the figures and animals, and its accuracy will not be doubted, at all events by our readers, when we say that the diorama is painted from sketches made by Mr. James Fergusson during his long residence in the country,—a residence he has made so profitable to all of us. The variations of light, too, are exceedingly well managed, as is the junction of the different parts so as to avoid breaks. We are sincere in complimenting Mr. Dibdin on his work, and hope he will obtain the patronage he deserves.\*

At *Wilkie's Rooms, St. James's*, an offshoot of the "Overland Route" is exhibiting by Mr. Stoqueler, who is certainly one of the best exponents of a diorama that has yet appeared, having the art of just telling enough, and saying his say in an easy way. The diorama illustrates "Life in India," and consists of a series of separate pictures, which pleasingly serve to show mamma and sisters what the poor dear "Captain" is about, for the good of his country.

The *Lyceum Theatre*.—The nature of a piece just now produced at this theatre, called "A Day of Reckoning," is very different from those usually given here; but its "getting up" is not, for this is excellent. It must not be inferred, however, from this antithesis, that the piece is not good: quite the reverse: it is an adaptation very felicitously and artistically made by Mr. Planché, and, though in the hands of others it might be degenerated into a "double-stamp" melodrama of the old Coburg school, it is here a finished exposition of a particular phase of life. The pathos and patience of Madame Vestris, and the polished elegance and intense scoundrelism of Mr. Charles Matthews, are equal to anything of the class ever shown on the stage. But to confine ourselves to our province, which in this case extends to pointing out for admiration the opening scene in the last act,—a summer-house and garden, with terrace approached by balustraded steps, on the sea-shore, although we have seen the elements of it before. The sky and sea, in this and the last scene, are admirably painted: indeed, in giving freshness and air to his pictures, Mr. Beverly has no superior. The drawing-room scene in the first act only needs a carpet to

\* We suggest to the lecturer that he should be more conversational, and less declamatory.

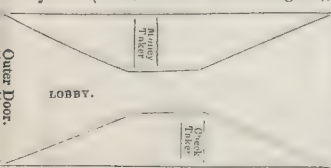


be perfect, but this the rapid business of the piece prevents.

Music appears to over-ride everything just now but the "Papal Aggression," and this fact came forcibly before us on the night that Exeter Hall was opened by the Sacred Harmonic Society. We went there on that evening in consequence of illustrating the new roof, and found the enormous apartment crowded in every part,—let us say there were at least 2,000 persons there. Circumstances led us to go thence to Julien, at Drury-lane, and here, where we thought, almost as a matter of course, we should find a solitude, there were at least 3,000 persons listening to the stirring strains which he ever manages to pour out before his audience. To make the note perfect, we posted away to the *National Concerts*, and there (a greater rarity, by the way, for the public have wisely stood by the old original) a dense crowd also filled every part,—another 3,000 at least,—so that here were 8,000 persons (we should be nearer the mark if we said 10,000) listening to music at the same moment, on that evening.

The sight of the week, however, has been the *Cattle Show at the Baker-street Bazaar*, where, by the way, some additional apartments have been added, under the direction of Mr. Boulnois, architect. The crowds who have flocked here during the week give some faint notion of the flood of life that will visit the great Exhibition in 1851. The collection of implements and means to economise labour and increase productiveness in farms should not be disregarded by architect and builders. It would be wise for some of the former to turn their attention to farm buildings, wherein great want of knowledge is now too often shown. The farmers are beginning to stir.

A correspondent, "D," has written us on the subject of entrances to theatres and public buildings. He says, "The ground-floor entrances to our theatres are always attended with inconvenience; frequently with destruction and loss of apparel; and sometimes with personal injury; and so long as the lobbies or avenues retain their present form, the continuance of these evils appears inevitable. It has occurred to the writer, that if the lobby was gradually narrowed from the outer door to the money-taker (as shown in the annexed diagram),



so as to allow but one person to pass, and again widened (in order to afford equal facilities for leaving the house) from the check-taker until the main entrance was effected, much less inconvenience would be sustained, and the side pressure entirely avoided. It would also be desirable that the money-taker should be on the visitor's left hand, and the check-taker on the right—the reverse of these positions being more generally selected.

The plan suggested by the diagram may not be entirely free from objection, but should it draw attention to the subject, and thereby ensure increased facilities of getting in and coming out of our public buildings, the object of the writer will be attained."

The money-taker and check-taker are too near. The temptation to dishonesty in such posts is always strong enough, and should not be increased by facilities.

**THE CAMBRIDGE MONUMENT.**—It has been resolved, at a meeting of the subscribers, held in the Freemasons' Tavern, Great Queen-street, on 3rd inst, that this much-talked-of monument shall consist of an asylum for widows of private soldiers and non-commissioned officers,—the building, as explained, "to contain twenty inmates, each to have two rooms; each costing 1,500*l.*, with cost of erection of kitchen in common, washhouse in common, general dining-room, coals, candles," &c. A revenue of 1,600*l.* is calculated on to sustain such an institution, were it once built, as "a monument to the good Duke of Cambridge."

#### INSTITUTION OF CIVIL ENGINEERS.

At the meetings on Nov. 26 and Dec. 3, the discussion on Mr. Struvé's paper on "The Ventilation of Collieries, theoretically and practically considered," was continued, to the exclusion of any other subject. The difficulties found in using mechanical exhausters were attributed in a great degree to the small size of the inlet and outlet valves, and the improvements introduced by Dr. Arnott in the apparatus for ventilating the New County Hospital, at York, were instanced as examples of the necessity for using curtain valves, of large area, for the machines, as it had been found that as the dimensions of the valves were increased, the power required to work the machines diminished. The application of small water-power engines, like those made by Mr. Armstrong (of Newcastle) for giving motion to the ventilating machines, was recommended as very effective and most economical.

On the 10th inst. the discussion on Mr. Struvé's paper was continued throughout the evening. The steam jet, in its application to the upcast shaft, was again considered: it was argued, that, like the furnace, it did not produce any pulsation in the current of air which was so very wasteful of the power for giving motion to all means of mechanical ventilation, and, therefore, that by the accepted laws of physics, the steam jet setting in motion a body of air which continued to flow without intermission through the galleries and the upcast shaft, subject only to the deduction for the pressure of the atmosphere, and the friction of the column of air on the surface over which it passed.

In summing up the discussion, the evidence given before the House of Lords, in 1849, was again minutely analysed, with the view of showing that the deductions previously drawn were not correct, inasmuch as the results obtained were owing to temperature, and not to the exhaustion created by the steam jet. The published opinion of M. Combes,—"that the useful effect of the steam employed to produce the motion of the air, by projecting it into a tube, is in all cases much below what it is capable of producing when applied to a steam-engine working mechanical ventilators of the most imperfect description," was quoted in support of these views.

#### INTIMIDATION BY WORKMEN.

THE glazier, St. Clair, who, on a former occasion, was charged at Marlborough-street, on the part of Messrs. Fox and Henderson, with threatening, while at the head of fifty fellow-workmen on strike, to make Mr. Fox repent his refusal to listen to what he had to say, has been again brought up, on a charge of attempting to force Mr. Fox to make an alteration in his mode of carrying on the business of his firm at the Exhibition Building, Hyde-park.

After some technical objections were disposed of, Mr. Bingham, at an adjourned hearing, gave judgment to the following effect:—

I am clearly of opinion that the defendant has endeavoured to force the prosecutor, by threats, intimidation, and molestation, to make an alteration in the mode of conducting his business; and that the offence was complete in the letter which the prosecutors received,\* and confirmed and repeated in what passed at the subsequent interview. To put any other construction on the defendant's proceeding would render a dead letter a statute which has been a great advantage to workmen as well as employers. It is to be regretted that the defendant has overlooked the fact that this statute (6th of Geo. IV., cap. 129, sec. 3) has abolished all the restraints to which workmen were formerly subject, and, short of intimidation or violence towards man or master, has given them the uncontrolled arrangement of their own affairs. It is to be regretted that they have overlooked the fact that no instance can be found of any attempt to regulate the rate of wages by violence or intimidation that has not proved in a short time disastrous to the workmen. The judgment of the Court is, that, under the 6th of Geo. IV., for this offence the defendant be imprisoned for two months, without hard labour."

With the view, as was understood, of appealing against this decision, a copy of the judgment and conviction was demanded.

\* In respect to this letter the magistrate said—"It has been proved that on Friday evening, the 22nd of November, a body of nearly fifty glaziers quitted the employment of

#### THE CHOIR OF YORK MINSTER.

I was recently in the North, and on Sunday, the 24th November, a day which your readers will remember as peculiarly Novemberish, I went to the morning service in York Minster. In the choir there are on each side, the stalls, two closed pews, and two open seats. As I was not known, and am indifferent about such matters, I took a place in one of the latter.

Now let your readers think of the supreme beauty of this building, and then turn to the state of the choir.

There is not a bit of matting of any sort to cover the stones; there are no cushions on the open seats; there is no accommodation for kneeling. Between the pulpit and the communion-table, a very long space, there is a series of common school deal forms, without backs. So that "the people" are expected to go to this architecturally superb temple on a November day, and sit with their feet on the cold stones, without cushions to the seats, and without backs to lean against.

The contrast between the fine work of the screens and the deal forms is peculiarly offensive. And I may mention, although not in your way, that Archdeacon Musgrave preached a sermon at least one-third too long.

DAVID SINGLEHEART.

\* Our correspondent here describes the state of other cathedrals besides York. Last Sunday we attended service in Bristol Cathedral, and have suffered from it ever since. David Singleheart's letter would apply *verbatim*.—Ed.

#### THE FEVER-STILLS AT WORK AGAIN!

We are not only astonished, but indignant and disgusted, to see it announced, that "the cholera having now entirely disappeared, and every fear on the subject of the public health having subsided," several of the City graveyards are about to be re-opened. What a merciless, remorseless pursuit is that of money-making! How loathsome is the hollow show of reason with which the unseemly actual motive is glossed recklessly over. This is winter: the cholera-agitation has subsided: now is the time to mount again on the municipal shoulders off which we were shaken in the time of fear! Such is the secret thought of the traffickers in corruption. That the bodies so trafficked in will only be ripe, rotten, and ready for the stew and distillation of the coming summer, is nothing to them. That thousands and tens of thousands will be tainted with the fever-poison, and themselves fermented into rotten leaven of corruption to poison and ferment still more and more,—what is all that to them? Let us eat, drink, and be merry, whoever may die. *Savez qui peut*. Even for these prescriptive rights we had some respect, but what respect have they for our prescriptive right to live and breathe untainted air? The move now indicated will, we sincerely trust, precipitate the doom of the fever-stills, one and all, within "the bills of mortality"—within the limits of metropolitan life. The Legislature must look to it without fail so soon as it meets. Where is Mr. Walker? Is he put out of heart by the neglect he has found?

#### PICTORIAL CHRONOLOGY IN BAVARIA.

It is stated that the King of Bavaria has formed the design of causing to be executed a series of pictures on subjects derived from the annals of all times and all nations—the whole being destined to form a sort of pictorial universal chronology.

Messrs. Fox and Co.; that on Monday morning Mr. Fox received a letter from the defendant, in which, after characterising the communication as strictly private, he proceeds—"I wish to mediate successfully, if I can, between you and your men; if I am successful, I shall be happy, and the matter shall rest where it is; if not, you must sustain the consequences." He then goes on, "This is to inform you that, unless you consult me as to the proposal of your manager, Mr. Cochran, to the glaziers, and come to a fair and honourable arrangement with the glaziers in your employment, that they not only shall be enabled to earn a fair day's wages for a fair day's work, but put such work in as shall bear inspection and satisfy all, the following advertisement shall appear in the London papers of to-morrow morning:—"I, William St. Clair, pronounce that the building in Hyde-park is being botched by a system of sub-contracting; that it will therefore be worthless and unsafe, and that the nation will be disgraced unless this matter be looked into." Now this is not intended as a vulgar threatening to intimidate you, but the candid advice of one of your workmen, who has the honour to be a gentleman as well as a glazier."



## THE BASILICA OF ST. BONIFACE, MUNICH.\*

Moss, ZILBLAND, Architect.



## THE LATE MR. CHARLES HULLMANDEL.

AMONGST the numerous inventions and appliances of modern times, lithography has deserved and obtained a high position. To lithography we owe not only the introduction of colour printing for the ornamentation of paper, show-cards, labels, boxes, &c., but it has been the means of multiplying the creations of the artist's genius, fresh from the master's own hand, without the inevitable

deterioration consequent on the intervention of the inferior skill and servile imitation of a copyist. Lithography has done much in diffusing a knowledge of true art, and society at large owes something to its discoverer and improvers; the greatest of which latter (at least in this country) we regret to say has lately passed away from the scene of his labours.

With the skill, knowledge, and taste of a travelled and accomplished artist, Mr. Charles Hullmandel arrived in England from a continental sojourn of some years, and, in 1818,

first set up, in Great Marlborough-street, a lithographic press or two for the reproduction of his own sketches. So many and so eager were the requests of his friends, artists and amateurs of high note, for the use of his presses, that he conceived and carried out the idea of devoting his whole time and attention to lithography. In order to be thoroughly acquainted with the chemical changes of the lithographic stone, when undergoing various preparations, he studied chemistry under Professor Faraday, and qualified himself to investigate the causes

\* See p. 589, ante.

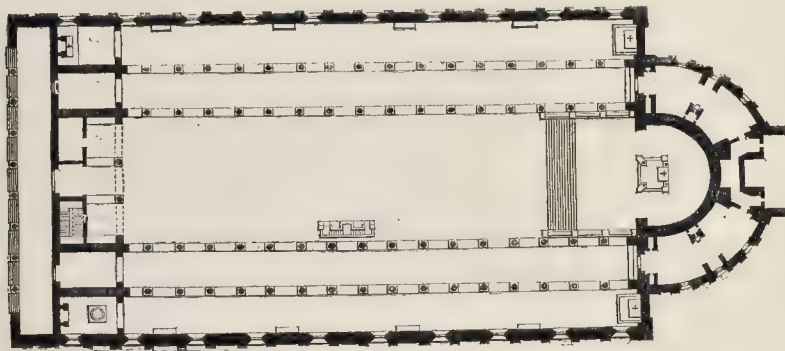


ELEVATION AND PLAN OF THE BASILICA OF ST. BONIFACE, MUNICH.\*

MOSS, ZIEBLAND, ARCHITECT.



ELEVATION



PLAN.

of the various failures, and to alter or modify the preparing fluids, so as to suit the nature of the stone, chalk, ink, &c., on or with which the drawing under preparation had been executed. Senefelder had invented the method of printing a tint over a black and white impression, so as to imitate a drawing on tinted paper with raised lights; but it was reserved for Mr. Hullmandel to make the process of real value, by discovering the means of *gradating* the tint, which great improvement prepared the way for, and gave rise to those splendid folio works by Stanfield, Roberts, Prout, Nash, Haghe, Harding, &c.

His next step was the application of lithography, about 1822, to printing in colours, which he carried to considerable perfection, and the first specimen of which, representing the paintings on the interior of an Egyptian tomb, was, we believe, published by Messrs. Longman and Co. His attention was then directed to acquiring the means of printing drawings made on the stone with a brush and liquid ink, after the manner of Indian ink or sepia drawings, and which the French authorities in lithography had pronounced impracticable, and for the discovery of which his late Majesty Louis Philippe had offered a

reward. Mr. Hullmandel's energetic and investigating mind, however, triumphed over all obstacles: success was achieved; he deserved, claimed, and received the reward; and the invention, which he entitled *Lithotint*, he soon after patented.

The introduction of the use of the "stump" on stone, and the discovery of a peculiar method of preparation of the drawing *so executed*, was his next improvement, and afforded to artists a far easier, quicker, and more beautiful means of multiplying their sketches or drawings than had ever before been in their hands. Possessed of an indefatigable spirit of research, of an ingenious and well-stored mind, of great energy of character, it is not surprising that his talents should have been occasionally diverted from the pursuit to which he had devoted himself, and accordingly we find, amongst many other useful inventions of his not connected with lithography, two patents, one for a beautiful and rapid process of calico-printing, and the other for imitating marbles of all colours on earthenware, specimens of which have been published by Messrs. Copeland and Co. His remains were interred, attended by his friends, in the cemetery at Highgate, on the 21st ult. and he will be long regretted as a talented, upright, and honourable man.

ON POLYCHROMATIC DECORATION IN ITALY,

FROM THE 12TH TO THE 16TH CENTURY.

The following is part of the discourse delivered at the meeting of the Institute of Architects, on the 2nd inst., by Mr. M. Digby Wyatt:—

Some time since I endeavoured to elucidate the nature of the influence which the *mosaic works* of the ancients exercised on those of the middle ages: on the present occasion I shall endeavour to show how far the *painting* of classical times was perpetuated in the mediæval Polychromatic Decoration of Italy, and to what extent the Greek element was affected by Roman tradition. The period at which I propose commencing the consideration of the subject is that of about the year 1100 of our era; but in order to realise a correct view of the after-current, it is necessary that we should ascend the stream, and trace to the best of our ability the various influences which originally tended to define its course.

In the Catacombs of Rome and Naples the earliest paintings after the time of Constantine are to be found. For years these sacred depositaries were the haunts of the friends and relatives of those who had suffered in the days of persecution, and to these friends we must attribute the works commemorative of their

\* See p. 589, ante.



faith and trust. The general characteristics of such ancient paintings are:—the outlines are strongly defined by a very firm brown line, dark and broad; the figures are by no means well drawn, and the colours and shadows are not very forcible, although they are somewhat heavy.

Now, in works of a little later date, approaching the 12th century, we find, particularly in illuminated manuscripts (such as the Virgil in the Vatican), the same traces of colouring, but the style is completely distinct from that of the Greek manuscripts of the same time: in the latter, light and shade are indicated by positive lines, following the forms of the limbs. The whole character of Greek art is marked by that peculiar convolution, which was the consequence of the habit prevalent among the Greeks of decorating their vestments, the robes of their priests, and the hangings of their churches, with elaborate needle-work; and *flagree* ornament pervades their drawing of the figure, as there is no doubt it pervaded their actual embroidered work, exerting an influence which may be traced subsequently in Saxon and Northern manuscripts.

We are accustomed to suppose that the Greeks executed polychromatic designs only by means of *mosaic*; but I think, that on deeper inquiry, it will be found that the old processes known to the Romans, such as *tempera*, *encaustic*, *fresco*, painting, and that particular branch of *fresco* which the Italians called *fresco secco*, were perfectly well known among the Greeks. We find in the Treatise of Theophilus, written about the year 1200, though sometimes assigned to an earlier date in the middle ages, a MS. of extensive circulation, a complete description of all the various modes in use in subsequent periods in Italy; and on comparing this manuscript with the curious MS. discovered by M. Didron in the Convent of Mount Athos, we find that the Greek practice was nearly coincident with the description in the MS. of Theophilus, which also details many of the processes used in the north of Europe. It is therefore curious, as showing how the traditions of Roman skill in painting have been handed down to later times.

Of the works actually executed in mosaic, we find among the first and greatest efforts those in the church of Santa Sophia; and every one interested in the subject will rejoice to know that we may expect a full account of them in the forthcoming work of M. Fossati.

From a period as early as the fourth down to the middle of the eighth century, a constant succession of beautiful works in mosaic had been executed in the churches at Rome, but the persecution of the painters of figures, which commenced before that period, and more particularly under Constantine Copronymos, and Leo the Isaurian, increased about that period to such an extent as to drive the Greek artists from Byzantine into Italy,—a happy event for the latter country, by proving an immediate and wholesome stimulant to its productive powers. \* \* \*

To convey some idea of a church thoroughly decorated with mosaics, I would remark that in such churches as those of Mourale at Palermo, and St. Mark at Venice, the whole of the wall was fully covered with the plain material, and from time to time, as the artist desired to add colour, supposing the whole decoration had not been at first put in, he took from the stucco on which the mosaic cubes were placed, the pieces necessary to form the pattern, and replaced them by cubes of the colour requisite to produce the effect he desired. Generally speaking, the church was composed of columns and arches, forming a long nave and aisles, with a tribune at the end, and the head or concha of that tribune was generally filled with a colossal figure of the Saviour in the act of benediction. On each side of the choir were ranged histories from the New Testament, the Life of Christ, &c., typifying the glory of the Church triumphant; and in the nave, generally speaking, above the top of the arches, on each side, were rows of subjects in small groups and figures, principally from the Bible, indicating the history of the Church militant, and sometimes legends of Saints, though the latter occur less frequently.

The great feature of all Byzantine mosaic is the gold ground; which exerted an im-

portant influence on the productions of the artists of a later time.

When we enter on the subject of actual painting in colours, we find that Cimabue, who was a cotemporary and great friend of Gaddo Gaddi, acquired at once an amazing influence in that branch of art. His greatest work, and that which has stamped his reputation, is the ceiling of the Church of St. Francesco at Assisi. He had previously only executed a few Madonna and similar subjects. Of the three principal ceilings, executed by him, in this church—one contains figures of St. Francis, St. John, and our Saviour; another, represents the four Doctors of the Church, in full length figures, seated on chairs; and the third is now nearly obliterated. A curious characteristic of all his works is, that in consequence of his connection with the decorators in mosaic, the key, so to express it, in which they were composed, appears to have been that of mosaic.

The immortal Giotto was an artist of the highest order. One great charm in his works is the feeling for the poetry of devotion which seems to run through them all. He was an intimate friend of Dante, and it was, probably, from the author of the "Divina Commedia" that he drew those inspirations which made him so intellectual a painter. His life is interesting in every respect. The first works of Giotto were executed at Florence, and they subsequently procured him employment at Rome. In that Capital of the World, he designed many works which time has destroyed; but one most interesting relic of his early labours remains in the "Navicella," that is, the church represented under the traditional allegory of a ship. This curious mosaic is now fixed in the vestibule of St. Peter's. He then went to Padua, where he executed the paintings in the chapel of the Arena, representing the Life of our Saviour and the Life of the Virgin.

Among other interesting remains of German art in Italy, the Monastery of San Benedetto, at Subiaco, deserves to be mentioned. It appears as though the Benedictines, excited by the influence and example of the Franciscans, endeavoured like the latter to call in art to increase the influence of their order, and therefore built a chapel in honour of the "sagrospeco" of Saint Benedict, and ornamented it with beautiful decorations. The whole of the upper, lower, and middle churches are covered with paintings. The principal picture, a representation of the Crucifixion, is particularly interesting; it is one of the earliest and best representations of that subject: besides this, there are also delineations of many of the curious traditions preserved in such works as those of Jacopus de Voragine and others, on the Lives of the Saints, and in the apocryphal Gospels. The only clue now to be obtained to the identity of most of these frescoes, is the name of Stemmatico written upon one of them, which indicates that an artist of that name was employed. It is curious that so little should be known of one of the most interesting monuments of that period.

The extraordinary interest which attaches to the Campo Santa at Pisa, as one of the nurseries of painting before it could well stand erect, justifies a brief recurrence to the treasures it contains. On the walls of that extraordinary cemetery are embodied, in pictorial form, many of the most interesting subjects which can affect mortality. The *Last Judgment*, by Orcagna, which served Michaelangelo as a model for certain portions of the great work which has rendered him immortal, exhibits the most wonderful energy in giving tangible form to the Dantesque conception of the subject. Throughout Italy, remains of the mosaic style are to be traced in the fresco paintings, and nowhere are they more manifest than on the walls of the Campo Santa at Pisa. The adoption in fresco of simple geometrical figures, which did not interfere with the curved lines of the composition, and which gave a "mosso," or movement to the groups (just as architecture introduced in a picture gives life and vitality to the delicately modelled surfaces), was in every respect most valuable. The gold of the mosaics, which was at first retained by the fresco painters, began to disappear; its use being principally confined to the delineation of the nimbus or circle that surrounds the heads of the Saints—executed in a

sort of raised and stamped plaster—and to different ornaments about their persons—as a gold key in the hand of St. Peter, &c.

Throughout Italy there remain numerous indications of Gothic decoration, similar to that at Subiaco, many of which are due to masters whose names have not been recorded, and whose "lives have been written in water." In all these works, there is much grace, and in some, the old connection with Byzantium is evident; as, for instance, in the patterns worked on the hems of the garments worn by priests, and in many other details of costume. \* \* \*

It would not be right to pass over the wonderful works of Fra Angelico da Fiesole, a Dominican Monk, who decorated the Convent of San Marco, at Florence, in a style, the peculiarity of which is that of delicate modelling of surface with so little *chiaro-scuro* as to maintain a general effect of flatness, if I may use the expression, and an extreme refinement of, as his name imports, "Angelic" expression. The definition of form which he obtained, without that extreme rotundity and high relief which are decidedly objectionable when it is desired to keep the wall painted on flat in appearance, makes his works a valuable study to whoever would revive mural painting satisfactorily. His cheerful general colour was no doubt influenced by the works of Gentile da Fabriano, an artist who not only used the most brilliant colours, but was too often addicted to a redundancy of gold ornament. There is a work by him, the Worship of the Magi, in which he has taken every opportunity to load the figures with gold ornaments; its great harmony, however, neutralizes its gaudiness, and it looks as brilliant, lively, and pleasing as possible.

It is a curious thing, that Raffaele and Pinturicchio were both pupils at the same time under Perugino, though Pinturicchio was much older than Raffaele. In addition to them was Bacchiacca, whom Vasari mentions as celebrated for his little figures, animals, and ornaments.

I would call attention to a peculiar mode of decoration common in Italy, by the use of coats of different coloured plaster, one over the other; the bottom dark, the next grey, and the third white; upon which, in order to produce a dark tint, the artist drew with a style or pencil, or removed the plaster, till he reached the black ground: for a half-tint, he scraped off the white, and kept the grey, whilst the white was left for the strong lights. In a short time after its introduction, this art was carried to so high a pitch, that Giulio Romano decorated the whole front of several palaces with different coloured cements, and with extraordinary rapidity. I cannot but think that this is a mode particularly adapted to English practice, and to English climate, as all the coats of stucco might be made to resist moisture.

In conclusion, I do most sincerely hope the preliminary practice of contemplating a building as it should be in its complete form, with its architecture and sculpture and painting united, which I find obtained universally for so many centuries in Italy, may become constant practice among us: also I think, that in the history of the world, there has scarcely been known a country that has reached the pitch of civilization at which we have arrived, that has studied the arts in so isolated, and I may also say accidental, a manner. If architects would only think a little more of the power of decoration and illustration, by means of colour, I submit that they would not only build more effectively, but more economically; since it must ever be remembered that a large flat surface is one that, best of all others, admits of ornament; and by introducing their ornament in relief sparingly, and in the right points, they would be enabled to accentuate and emphasise the points to be enforced, and to which the eye should be attracted, and leave in quietude those that should tranquillize the vision, and lead to the appreciation of the more salient points.

In the course of a long and interesting discussion, the chairman (Mr. Fowler, suggested the consideration of an interesting portion of the subject—its connection with our own country. Although any specimens found here might be humble in comparison with the great works in Italy, yet it would be interesting to see how far the art might have been carried, by referring to the numerous, interesting



discoveries which had recently been made, and to which the attention of architects and antiquaries had been particularly directed.

Mr. Godwin, Fellow, thought it evident that an awakened desire exists on the part of the public for coloured decorations in their houses, proportionate to the extent of their means. The public had had enough of flat white ceilings. It would depend very much on architects themselves how that desire should be directed and encouraged. The great difficulty hitherto had been to find competent persons, who would decorate ceilings and walls at rates of remuneration which would render the undertaking, in a pecuniary sense, practicable. Such a class of artists he, however, believed might be expected from the Schools of Design, with whose aid, taking advantage of the present turn in favour of art, we might hope to see sculpture, painting, and architecture united in our buildings. In his own practice, he had endeavoured to introduce coloured decoration, which had always proved satisfactory to the parties interested; and although in the first instance some objections might have existed, yet the example thus set in one building had been soon followed in others. It would be highly desirable thus to improve and decorate the plain whitened interior of St. Paul's, a subject to which he believed that the dean and chapter had for some time given their serious attention. This proposition, if strenuously carried into effect, would be most honourable and encouraging to artists, as well as to all parties concerned in the work of improvement.

The Chairman would remind the last speaker that an offer was once made to decorate the interior of St. Paul's, but that it was declined by the authorities of that day, from what they thought a conscientious and proper motive. He, however, trusted that the remarks just made would not pass unheeded, for he had derived great pleasure from examining the churches of St. Vincent de Paul, and Notre Dame de Lorette, at Paris, which present specimens of Polychromic decoration applied to a style, in which we had not been accustomed to find it. These splendid examples prove that such decoration, with painted windows, &c., need not be confined to the mediæval buildings, but that it may be successfully applied to such edifices as the Cathedral of St. Paul's.

Mr. Ashpitel said, that having experienced the difficulty of preventing injury to decorative painting by the climate and by the use of gas, he had attempted lately to unite outline ornament in relief, with polychromy; so that if the colour should become faded, or altogether disappear, the outlines would still remain, and the whole decoration could be easily and cheaply restored by an inferior hand.

Mr. Scoles, Hon. Sec., observed, that the Egyptians never painted on a flat surface, all their painted decorations being either in intaglio or in slight relief; but, he thought, that in this country the expense of modelling or carving were to be added to that of the painting, the cost would be as great as that of renewing the painting on a flat surface.

Mr. Pepworth, Fellow, considered that the architects of the last century employed the kind of decoration that Mr. Ashpitel had suggested, as might be seen in the works of the brothers Adams. He thought that architects during the last fifteen or twenty years had neglected to make themselves acquainted with the practical part of this subject, and by so doing had allowed the class of decorators to obtain their present position. He would beg to dissent from one of Mr. Wyatt's remarks,—that objects in mural decorations should not appear too round, and that they should only have, as it were, a half-and-half projection.

Mr. M. D. Wyatt explained his meaning to be, that strong projections and shadows should be avoided, so that no particular portion of the wall should appear to project before the rest; not that the figures should appear to be absolutely flat, but that the whole should appear under a quiet tone of chiaro-scuro, which would not attract the eye to any distinct portion of it.

Mr. G. G. Scott thought the pavement the only part of a building in which the effect of roundness in the figures and ornaments would be decidedly objectionable, on account of the unpleasant feeling which would be produced on walking over it. He then alluded to the remains of a pavement in a church at St. Omer, near Calais, which was formed of white stone, on which the figures and ornaments had been drawn, and the groundwork had been slightly sunk out to a depth sufficient to receive a chocolate-coloured cement. He thought such a pavement might have, in some places, greater effect than encaustic tiles.

**THE ADELAIDE WINDOW, WORCESTER.**—The committee for the erection of a memorial window to the late Queen Dowager, in Worcester, decided, on the 30th ult., to employ Mr. O'Connor, of London, as the artist. Mr. Rogers, of Worcester, lost the appointment by one vote only.

### Miscellaneous.

**DERBY.**—St. Werburgh's Church was reopened last week, by the Lord Bishop of Lichfield, after the extensive alterations and additions made to it during the summer.—The Board of Health for the borough of Derby have ordered the removal of a portion of the filth from the town, to a reservoir at a distance, there to be converted into manure, and sold to the farmers. According to the *Derby Reporter*, it is expected to repay the cost, with good interest. It is presumed that if the experiment is successful it will be largely acted upon.\* The "Derwent" will thus be cleansed, and the surrounding *terra firma* enriched. It would be well if the corporation were as alive to the appearance of the town. A new street has been formed from the market-place to the new bridge over the Derwent—the opening of which we noticed some week or two since—and some miserable and awkward-looking property lines it on either side. Instead of purchasing each frontage, and securing a handsome elevation to the houses, they have resolved to have nothing to do with it. The consequence will be, that buildings of all sizes, shapes, and manners will be erected, after the whim of individuals, and one of the finest opportunities of beautifying the town be lost. It is to be hoped they will reconsider this, especially as a good portion of the road was generously presented them—together with 500*l.* towards the bridge—by one of their own members. Let them bear in mind that the extra value of the frontage when thus improved would go to repay the outlay.—The extensive corn-store at Nottingham, for the Midland Railway, about 100 feet by 80 feet, and 95 feet high from foundation to roof, and to hold 10,000 quarters, is being rapidly proceeded with.—The Derby Water-Works are completed, and the water laid on. Tenders for the new lodge, and cottage for engineer, were lodged last week.

**EXCAVATIONS AT FOUNTAINS ABBEY.**—Earl de Grey has directed that the excavations at the abbey shall be proceeded with; and that that portion of encumbered ground south of the chapter-house, kitchen, and refectory, be effectually cleared. The labourers have, therefore, commenced operations at the base of the south wall of the refectory, close to where the river Skell emerges from the cloisters, and at the farthest point on that side of the abbey which requires excavating. As yet, the works have not proceeded far; but what has been disclosed is interesting, and proves that the whole of the south end of the refectory has originally stood in the water. A deep water channel, under a spacious round arch, runs under the entire breadth of the apartment.

**CAMBRIDGE ARCHITECTURAL SOCIETY.**—The last general meeting of the Society, for the Michaelmas Term, was held at the rooms, on the 28th ult., the Rev. T. S. Woollaston, M.A., in the chair. A paper was read by the Rev. C. R. Manning, M.A., on "The Monumental Effigy in West Walton Church," which was followed by a paper on "The Art of Illuminating," by Mr. G. Rowe; after which, a short paper was read on Probus Church, Cornwall, also by Mr. Rowe.

**CROSSING WELLINGTON-STREET (SOUTH), STRAND.**—May I venture, through your medium, to suggest the expediency of erecting a small obelisk or pillar, surmounted by a gas lamp, and surrounded by two or three slight posts, in the centre of the crossing of the above street? In consequence of the extension of the South-Western line to the Waterloo-road, the traffic over the bridge has increased to an immense degree, so that it is often difficult to advance or recede to the pavement on the sudden approach of vehicles, and therefore such a plan as I now propose would afford pedestrians a very convenient resort from the danger of being run over, and would not occupy much space.—Z. W. D.

**NEWCASTLE SOCIETY OF ANTIQUARIES.**—At a meeting which took place last week, Dr. Charlton read a paper on the subject of the ancient remains recently found at Hawkhill, near Alnwick. Later in the evening a paper was read by Mr. G. Bouchier Richardson, "On the Great Gates of the Town Wall of Newcastle-upon-Tyne." Mr. Richardson

showed, that in most cases where grants are mentioned for building the walls, they can only refer to repairs or restorations to a greater or less extent. He also showed that it was unlikely that such a period as twenty or twenty-five years should elapse between the commencement and completion of the walls (as is stated), when it is considered that the town would thereby be kept in a state of continual insecurity—much less, as Gray has it, that the walls commenced in John's days were not completed till those of Edward III. It is lamentable that we should not have a single gate "to the fore," or even a tower in a decent state of preservation. All have been more or less tampered with; large fragments of the wall are continually being removed; and in a few years (he remarked) they will not have it in their power to refer to a single example of our ancient girdle of defences.

**RAILWAYS AND ROADS IN HILLY COUNTIES.**—Mr. W. H. Villiers Sankey, C. E., proposes, in a periodical named *The Advocate*, that in districts where very steep gradients would otherwise be necessary in the laying out of railway lines or roads, the lock principle, carried out in canal engineering, might be usefully applied in the form of hydraulic lifts for raising and lowering trains, &c. from one level or reach to another. Thus, he observes, might the locomotive and its train be brought to and from the very summit of even a lofty mountainous country, or into and out of the deep recesses of mines. To many important towns, as yet beyond the reach of railway traffic, this plan, he remarks, would be of essential benefit; it might have obviated the boring of the Alps, according to M. Dandelin, of the Corps de Ponts et Chaussées—by an Alpine lift! *et error nullus.*

**CLUB FOR THE ARTS, &c.**—With reference to your correspondent, H. B., I would ask what objection there could be in forming a club, wherein not only architects, but painters, sculptors, engravers, engineers, and scientific men should form a portion of the institution or club. It appears to me that this would have its advantages in many respects. First, it might lighten the terms of subscription and entrance fee; in the next place, by combining the various professions, many would feel an additional interest in various contributions, and ultimately might form a most interesting gallery of art, as well as library, together with a lecture-room, &c., and in such a locality as that named by your correspondent, it would be very desirable.—A SUB.

**WORKS AT ST. MARY'S, BRIDGEWATER.**—Considerable works have been going on here for some time past. The *Bridgewater Times* of last week gives a long notice of the progress which has been made. The clerestory wall, down to the apex of the nave arches, has been rebuilt. The nave roof is new: it is entirely of oak, constructed on the hammer-beam principle; and was adopted with a view to the re-use of the old rafters. The principals, the purlins, moulded ribs, hammer-beam, and wall pieces, have been formed out of the old materials taken from the beams and joists of various floors that existed in the church. The principals spring from corbel angels carved in stone. The clerestory windows are much larger than the old ones, and will be filled with Stansell's diaphanous glass, having an ivy-leaf stained margin surrounding the lights. Mr. Breakspear is the architect, and Mr. Wainwright the contractor.

**ELECTRO-TELEGRAPHIC.**—Mr. Bakewell writes us to say, in reference to Mr. Bain's claim as originator of the copying or autographic telegraph, that "The electro-chemical telegraph, now in use in the United States, does not copy writing or printing, but only makes dots and strokes, which form a hieroglyphical alphabet, in imitation of Professor Morse's plan;" and that "Mr. Bain's invention of 1843 was intended only for copying metal types and other projecting surfaces, but it was found to be impracticable, and he subsequently patented the dotting telegraph now employed in America."

**EXETER BATHS AND LAUNDRIES COMPETITION.**—The competition for the above-named building has been decided in favour of the design submitted by Messrs. R. Brandon and R. Ritchie. The design of the last-named gentleman for the baths and laundries at Greenwich is now rapidly progressing.

\* Suggested in *THE BUILDER*, page 220, ante.



**LECTURES ON THE CONWAY AND BRITANNIA BRIDGES.**—On Thursday evening, the 5th inst., Mr. Edmund Wheeler, C.E., delivered his first lecture "On the History and Construction of the Conway and Britannia Tubular Iron Bridges," before the members of the Literary Society, Islington. After explaining why suspension bridges are but little used for railway traffic, and stating some of the difficulties of applying arched bridges to the requirements of the Chester and Holyhead Railway at Conway and at Bangor, the lecturer showed that past experience in the art of constructing girder or beam bridges had contributed little to the science of such structures as were required to span the Conway River and the Menai Straits. The lecturer gave a digest of a series of experiments conducted by Messrs. Hodgkinson and Fairbairn, at a cost of 6,530*l.*, and occupying eighteen months, prior to the commencement of the tubular bridges. Six experiments by them on a model (the prototype of one of the Conway tubes), one-sixth its size in all linear dimensions, showed, that by the judicious addition of about one ton of iron to a model beam, weighing originally only 5½ tons, its breaking weight was increased from 35 to 86 tons. This model, 78 feet long, 4½ feet high, and 2½ feet wide, constructed of plate iron only 1-tenth inch thick, proved itself capable of bearing more than four times the weight of an ordinary train.

**PEEL MONUMENTS.**—The Monument at Forfar.—At Forfar the subscriptions for erecting the monument now exceed 220*l.*; and the committee have accepted a tender by a builder in Forfar to execute the work for 255*l.*, according to the design approved of. This design, according to Scotch papers, was selected from thirty submitted in competition, and is by Mr. Maciaren, of Dundee. "It is in the Greek style, and consists of eight columns, arranged on a cruciform plan, with four square piers at the intersections which support the body of the monument—rising above the columnar ordonnance, and terminating in a vase."—The Leeds Monument.—Statuettes and sketches have been received from many competitors, and the committee have selected four for reconsideration. If our information be correct, these are by Mr. W. Behnes, Mr. E. H. Bailey, R. A., Mr. Mark Noble, and Mr. R. Spence, of Rome.

**THE RESTORATION OF LLANDAFF CATHEDRAL.**—Having lately had occasion to visit that interesting spot, I was astonished on my approach to notice the unusual feature of a gable and cross, standing, to all appearance, as forming the end of a ruined nave, but still too new (even at the distance of half a mile) to bear out my first impression. On a nearer approach, however, it was soon accounted for by a flat roof (added by our "modern restorers"). Surely, out of the merest respect to external effect, a roof of the same pitch as the gable could have been constructed (however bent the architect might be on spoiling the effect of the new nave internally by adding a flat ceiling). The cathedral, one of the most beautiful, in its truly original character (but certainly not in the originality of taste displayed, in erecting a Grecian synagogue, with four urns on the four corners, within the ruins of "the long drawn aisle"), deserves that care, consideration, and judgment which a prompt application of the critical rod would perhaps induce the parties concerned to bestow upon it.—H. B.

**RESTORATION OF BEDDINGTON CHURCH, SURREY.**—This work has been conducted under the direction of Mr. Joseph Clarke, architect; and the contractor was Mr. Myers. It is expected that the cost will not be less than 3,000*l.* The architectural character of the ancient church has been preserved in the additions and restorations. The new north aisle, extending the whole length of the nave, and in the later Decorated style, is separated from the old church by a row of round columns, with carved capitals of foliage. The roof of the nave is of open timber work, with carving. The chancel arch has been rebuilt, and a hammer-beam roof placed upon the chancel. The old stalls have been restored to their original position, and the whole of the nave filled with benches, some of which have their ends filled with tracery. The whole of the woodwork is oak, and the columns, dressings, &c., are of Bath stone. The children of the National Schools have united to pur-

chase two small windows of stained glass for the porch, and it is hoped that soon the remainder of the chancel windows will be filled with stained glass, and the organ re-placed under the tower arch. It is proposed to add a tower screen to part off the vestry. The tower arch and the other stonework on the inside have been cleared of whitewash, and restored with the plastering, &c., throughout. The floor of the church is laid with plain red and black tiles. The walls are flint, lined with brick, and the masonry is in Bath stone.

**HUDDERSFIELD MECHANICS' INSTITUTION.**—The annual *soirée* of this institution was held in the Philosophical Hall, Huddersfield, on Thursday last week. On the walls were a great many drawings by pupils, in ornamental, mechanical, architectural, and geographical instruction. According to the yearly report, the pupils now number 855, and there are 600 in constant attendance. There are 40 teachers, 12 of them paid and 28 gratuitous. The institution was said to be now in a more flourishing state than it has ever been. Mr. Cobden was present, and addressed the meeting, which was a crowded one, and attended by many influential residents of the district. In allusion to the heat of the room, Mr. Cobden said they could not but admire the architectural drawings displayed on the walls that evening, but really, if architects would for a while turn their attention from the various details of mouldings and other models of constructing buildings to the ventilating of rooms and building chimneys that would not smoke, it would be much better, for it was desirable to have rooms that they could breathe in, and rooms that in winter they could sit in comfortably, without being annoyed with smoke.

**LECTURES BY LORD CARLISLE.**—The Earl of Carlisle has been setting a singular example of kind and manly feeling to the aristocratic circle in which he moves, by delivering a set course of lectures to the members of the Leeds Mechanics' Institute and Literary Society. The first lecture was on the poetry of Pope, and the next on his lordship's visit to America. Both lectures have been delivered, although they were postponed for some days by an incidental call to a Cabinet Council at Windsor.

**THE "HUTCHISONIZED" IMPERMEABLE STONE.**—This patent has been in Chancery, as some of our readers may be aware. Mr. Hutchison had purchased the benefit of the patent in this country from the inventor, Mr. C. Le Goux, of Bayeux, whose agent, Mr. F. Teychené, of Cripplegate, had previously entered a caveat here, in his own name and that of his principal, and taken out the patent in his own name. Mr. Hutchison's right was resisted. Vice-Chancellor Bruce has just decided that Teychené was only Le Goux's agent, and hence, subsequently, the agent or trustee of Mr. Hutchison so far as related to his interest in the letters patent. He was, therefore, ordered to deposit these in the Master's Office, and pay all the plaintiff's costs.

**LEEDS SCHOOL OF DESIGN.**—A committee appointed last week had a meeting at the school on Monday, which was attended by the mayor and other gentlemen. The opinion generally expressed by the meeting was, that it would be creditable to the town to allow so valuable an institution to languish for want of the necessary funds, and it was therefore resolved that, to meet the existing debt of 250*l.*, and to raise an annual subscription of 150*l.*, a canvass be forthwith commenced. Messrs. W. Beckett, M.P., and J. G. Marshall, M.P., as well as the mayor, doubled their subscriptions. Subscriptions were also announced from Sir Thomas Beckett, Mrs. Beckett, Mr. E. Denison, M.P., &c.; and already about fifty new subscribers have been added to the list.

**PATENT-LAW REFORM.**—The committee appointed by the council of the Society of Arts have unanimously affirmed the principles on which they were constituted, and have published their first report, from which it will be seen that our review of its probable nature was correct. It has been thought fit, however, to recommend that 5*l.* be the amount of the first year's payment for registration on taking out a patent, and not 1*l.* only. It has been, very properly we think, resolved that the pre-

sent tribunals are insufficient for the trial of subjects of design and invention, and that there should be penalties for using the title of *patent* or *registration* where none has ever existed. The surplus profits of the proposed system of registration, it is thought, should be devoted to inventive purposes, not to the consolidated fund. Would it not be advisable to use it in assisting very poor inventors to pay the first year's instalment on hopeful or approved inventions?

**THE IRON GIRDER BRIDGE AT LONDON BRIDGE STATION.**—Sir John Rennie and Mr. Brunel, our readers will remember, pronounced against retaining the iron girder bridge over Joiner-street. The Railway Commissioners have since been moved in the matter, and the Government inspectors having inspected and tested it, they have determined, we understand, in favour of its strength and fitness for the structure; consequently it will remain.

**MONUMENT TO LORD JEFFREY.**—The committee at Edinburgh have decided on a work of sculpture, and have appointed a small sub-committee to see to the formation of a statue, which will probably be placed in the outer Parliament House. The subscriptions amount to 2,200*l.*; but a slight monument over the grave in Dean Cemetery is also spoken of.

**TAKE CARE OF YOUR CASH.**—The cashier of Mr. Fry, builder, St. John's Wood-terrace, lately had 119 sovereigns out of 120 abstracted from a bag of silver and gold coin in an omnibus, and his employer summoned him in the Court of Common Pleas to replace the money, lost, as was alleged, through negligence. The defence was, that the theft was not attributable to negligence, but to the dexterity of the thief. The jury returned a verdict for the plaintiff, taking care to exonerate the unfortunate cashier from the slightest imputation on his character.

**MR. ROBERT ABRAHAM, ARCHITECT.**—On the 11th inst. a respectable and respected member of the architectural profession, Mr. Robert Abraham, F.S.A., departed this life, at the age of seventy-seven. Among his principal works may be mentioned the County Fire Office, in Regent-street; and Westminster new Bridewell.

**MEND YOUR WAYS.**—Do pray insert the following tenders delivered for making roads on the Westminster Freehold Land Society's Estate, at Kent Town, East Moulsey.—C.

J. Sinnott .....	£2,400 0 0
W. Colson .....	1,362 2 0
J. Capper .....	975 10 0
Leach Thornton .....	950 0 0
H. Wood .....	950 0 0
C. Bates .....	950 0 0
W. Boyd Smith .....	932 4 4
C. Mills .....	882 0 0
E. Murray .....	768 0 0
R. Baff .....	750 0 0
M. and E. Reddin .....	719 0 0
J. and S. Jarvis .....	698 0 0
H. Parks .....	698 10 0
M. R. Sutherland .....	690 0 0
T. Colborn .....	680 0 0
Hopcroft and Whatford .....	663 0 0
G. Gregory .....	650 0 0
J. Pearce .....	620 0 0
H. Alderton .....	600 0 0
J. Knight and Son .....	527 0 0

## TENDERS

For sewers in Surrey and Kent, as advertised in *The Builder* of November 30, viz.—from Surrey Canal Bridge to Clapham-road, about two miles, 700 feet.—

Harrison .....	234,700 0 0
Johnson .....	21,900 0 0
Crook .....	21,735 0 0
Dagle .....	20,500 0 0
M'Keon .....	20,168 0 0
Smith .....	19,804 0 0
Gregson .....	19,865 0 0
Hill .....	10,533 0 0
Dethick .....	18,777 0 0
Writson .....	18,750 0 0
Nowell .....	18,552 0 0
Humphreys and Thirk .....	17,600 0 0

For the foundations of a new church in Gordon-square, London: Messrs. Brandon and Ritchie, architects.—

Kelk .....	£2,081 0 0
Haynes and Co. ....	1,891 0 0
Lock and Nesham .....	1,872 0 0
Myers .....	1,720 0 0
Burton (accepted) .....	1,681 0 0

The quantities were furnished by Mr. Percy.

For Alterations and Repairs at New Office for the Builders', Architects', and Engineers' Fire and Life Office.

Wallam .....	£1,128 0 0
Dora .....	1,089 0 0
Welles .....	1,080 0 0
Coleman .....	1,057 0 0
Taylor .....	854 0 0
Hopkins .....	913 0 0
Ryder (accepted) .....	844 0 0











# The Builder.

No. CCCCXI.

SATURDAY, DECEMBER 21, 1850.



HE annoyance, loss, and trouble which have been caused to builders by the wording of the Metropolitan Buildings Act, in respect of overhanging cottage roofs, and the want of explicit and proper instructions on the part of the official referees, for which we must consider them blameable, can scarcely be imagined by those unacquainted with the facts. It seems perfectly monstrous that, after six years' exercise of the Act, a simple matter of this sort should be left so indeterminate as to bring builders and district-surveyors still into collision, and cause the former loss and trouble. We will give the particulars of the last case of the sort before the referees, as a peg to hang some observations upon,—our object being to aid, as far as we can, in obtaining a clear understanding and preventing expensive and unnecessary litigation.

The case in question relates to a pair of semi-detached houses erected by a builder (Delay) in a wide road, in the district of South Kensington. The houses are set back 20 feet from the road, 15 feet at the nearest point from any ground in other occupation, and 30 feet from the adjoining pair of similar houses. These semi-detached houses, with overhanging roofs (the best sort of roof for such houses), are rising, as our readers know, in every direction, and should be encouraged in preference to close rows, giving, as they do, free passage for air, and pleasant prospects. The builder covered the projecting eaves of the roofs with stout zinc, let into the wall of the house, and turning round the end of the rafters up under the slates, duly separating the eaves of the two houses by projecting brickwork. He used zinc because it was being employed for the same purpose in the adjoining and other districts, and was, as he thought, perfectly in accordance with the Act.

The district-surveyor gave him notice it was irregular:—

"The overhanging parts of the roofs not being built of the same materials as are by the Act directed to be used for building the external walls to which such projections belong, or of such other proper and sufficient materials as the official referees may approve and permit. Schedule E."

And the notice not being attended to, he laid an information before the referees, setting forth that the projecting eaves were not "built of the same materials as are by the Act directed to be used for building the external walls, to which such projections belong," and requested the "award and direction" of the referees thereon.

At the hearing of the case, the conductor of this journal, who appeared for the builder, contended (using the words of the referees' award), that the overhanging eaves "formed part of the roofs of the said houses, and not of the external walls thereof, and did not constitute any such projection as was by Schedule E. of the said Act required to be constructed of the same materials as are by that Act directed to be used for building external walls, or of such other proper and sufficient materials as the official referees may approve and permit, and that the said alleged overhanging eaves

being covered with such materials as are, by Schedule G. of the said Act, required for covering the external parts of any roof, flat, or gutter of any building, and of any projection therefrom, are not contrary to the said Act, in respect of the materials thereof."

He further urged, although, strange to say, no mention of it is made in the recapitulation put forth by the referees, reasons why the referees, even if they dissented from his reading of the Act, should direct that the eaves might remain as they are: first, because the builder had acted with the desire to do right, and the conviction that this was the case; secondly, that no possible harm could result to the public from allowing the eaves to remain as finished, and no possible good be effected by a substitution; thirdly, that zinc was a material the referees had "permitted" in a similar position elsewhere; and, fourthly, that it was being extensively so used in many districts, with the sanction of the district-surveyors.

The referees made their award in the following words:—

First, That the said overhanging eaves constitute and are cornices to overhanging roofs within the meaning of the rule of Schedule E. of the said Act first herein mentioned, headed "Projections from Face Walls," &c.

Secondly, That the said Charles Delay has built or formed the said overhanging eaves or cornices of wood, covered with zinc, and not of any of the materials by the said Act directed to be used for building the external walls to which such overhanging eaves or cornices belong, or of any other materials approved or permitted by the Official Referees, as required by Schedule E. of the said Act first herein mentioned; and that the said Charles Delay has so built or formed the said overhanging eaves or cornices, and the same now are, contrary to the rules and directions of the said Act."

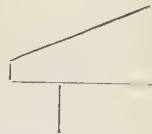
The builder is to pay the cost of the office, 1*l.* 10*s.* 10*d.*; and 1*l.* 1*s.* to the district-surveyor.

We never find fault with authorities willingly: the referees have, individually, our personal respect and confidence; but we must nevertheless, on the part of the public, protest against such an award as this, the result of which must be further litigation and expense. They are asked to direct in a case of doubt (*doubt*, on such a matter after six years!), and they merely assert, more than a month after the hearing, that what is done is contrary to the directions of the Act; they don't say (we can scarcely suppose they would say) that the work is to be taken down, or that, placed as it is, it may remain; but that it is contrary to the Act. The district-surveyor talks of going to a magistrate to enforce amendment (even this he could not do, without again going to the referees); and the builder, with the view of getting the matter settled quietly if he can, will probably consider his next best step will be, to make a direct requisition to them to allow the zinc to remain: when there will probably be another 1*l.* 10*s.* 10*d.* to pay to the office, and another 1*l.* 1*s.* to the district-surveyor. This is punishing a man with a vengeance for, at the worst, ignorance,—ignorance which he has no means of avoiding,—punishing him for doing what all his neighbours are doing with the concurrence of the proper officer.

For our own part, we still maintain that the eaves in this case are part of the roof,—do not come under the provisions of Schedule E.,—and may legally be covered with metal.

Schedule E. says, "As to copings, parapets, cornices to overhanging roofs, blocking courses, cornices, piers," &c., "or other architectural

decorations, forming part of an external wall, all such may project beyond the general line of fronts in any street or alley, but they must be built of the same materials as are by this Act directed to be used for building the external walls to which such projections belong, or of such other proper and sufficient materials as the official referees may approve and permit." Now the overhanging eaves in question cannot be called the "cornice of an overhanging roof," "forming part of an external wall;" they are part of the roof itself, as three lines will show;



and fall, we conceive, under Schedule G., which provides, "with regard to roof coverings, in reference to the materials thereof," that "the external parts of any roof, flat, or gutter of any building, or of any projection therefrom," "must be covered with slates, tiles, metal, glass, artificial stone, or cement." We should like the referees to take the votes of the "District Surveyors' Association" on this point, for we feel satisfied we should have the majority coincide in our view of the matter. The referees would not consider themselves at liberty to prevent the whole of the top of the roof from being covered with zinc: on what ground can they say the under part of it shall not be so covered?

Readers will naturally ask, what material the referees will permit to be used for the purpose? They on one occasion, when adjudicating on information lodged with them, directed that iron, laths, and lime and hair plastering should be substituted for the zinc, in that part where the eaves abutted upon other buildings or ground not in the same occupation.\* But in the case of some semi-detached houses, standing in their own ground, in the Lewisham-road (and the difference between such and close rows of houses in narrow streets should be remembered), they permitted, by award, the use of stout fir laths and cement. Even if this mode be adopted, however, on the faith of that precedent, a mode which will be found as cheap, convenient, and sufficient as any, some district-surveyor might yet be found who would feel himself compelled to drag the unfortunate builder before the referees, and would probably get a guinea for doing so.

## PROPOSED ENLARGEMENT OF "THE BUILDER."

THE increasing demands on our space, through the variety of interests which we represent and minister to, and the favour with which our efforts have been received by the public, have led us to determine on enlarging our journal permanently at the commencement of the coming year. The first and all succeeding numbers for 1851 will, therefore, consist of Twenty-four Pages instead of Sixteen, as heretofore, and the public will, we trust, appreciate our determination to ensure their support, when we say that the price will remain the same as now. We shall take another opportunity to show the advantages we shall then be able to give our readers, and the new features we propose to introduce. With the first number for the new year we shall present to our subscribers a fine view of the Interior of the Exhibition Building in Hyde-park, twice our usual size, besides other illustrations, and a large amount of important matter.

\* See THE BUILDER, vol. VII. p. 43.



THE LATE ROBERT ABRAHAM, ESQ.  
F.S.A.

It is due to the memory of a gentleman who has been constantly occupied in the architectural profession for more than half a century, that something more than the mere "vixit et obiit" of a monumental tablet should be preserved of his works and times,—and though an architect's memoir may be best read in his works, it is pleasing and instructive to have a slight sketch of the man also placed before us.

Mr. Abraham was the son of a builder, and entered the profession above sixty years ago as a pupil in the office of Mr. Bowen, a surveyor. At that time, as lately stated by the Chairman of the Architects' Benevolent Institution, there were not more than twelve architects in London, and with the exception of works carried on by Government, which were executed under the direction of appointed architects, nearly all matters connected with building in London were effected and carried out by the builders themselves without professional control. Contracts were then unheard of; and the system known as "measure and value" was then the sole method by which the value of works was ascertained. The number of persons, however, employed in working this system was at that time so small as almost to cause a monopoly, and those therefore who were engaged in it obtained, by constant employment, a thorough practical knowledge of the detail of building. These were the days when those interminable and monotonous lines of red brick barrack-looking houses arose, built in conformity with "the 14th of George the Third, commonly called the Building Act," covering the Bedford estate around Russell and Bedford squares, and the outskirts of the suburban parishes of St. Pancras and Marylebone. The bricklayer worked in exchange with the carpenter, and the plasterer in exchange with the mason. It was a system of barter, and the surveyor was employed to measure and adjust the accounts between the parties. Few were more actively engaged in this branch of business than Mr. Abraham in his earlier years. It was a bad school for architectural taste, but at a time when the nation was almost overwhelmed in war and cared little about such taste, it was, with the exception of the offices of the Government architects, such as Soane's, Wyatt's, Smirke's, &c., the best school to be had.

At the conclusion of the war, when greater opportunity was afforded for the exercise of architectural knowledge, and when an impetus to architecture was given by Nash in his valuable projected plans for the improvement of London, Mr. Abraham, by his industry, experience, and talent, had placed himself in a high position, and was well able to take advantage of one of those fortunate occasions which it is said occur to every man once in his life, and to catch the tide which bears on to honour and prosperity. It gave him the introduction to some of the chief Roman Catholic families in England, and much valuable private connection. From this time he carried on an extensive practice in architecture, and among his works may be mentioned the County Fire Office; Mr. Carbonell's premises in Regent-street; the Conservatories and Garden Buildings for the late Earl of Shrewsbury, at Alton Towers; the works at Arundel Castle, Worsop, Farnham, and Norfolk House, for the Duke of Norfolk; the Synagogue, near the Haymarket; the Westminster Bridewell; the Houses on the Brewers' Estate, in Oxford-street, and numerous works for private individuals. If in these works we do not perceive the hand of the artist architect, giving individual character, and impressing his own feelings on each line and detail, we see in all the exercise of much judgment, a great appropriation and fitness of purpose, and an economic use of material with great solidity of construction.

From the knowledge which his early practice gave him of builders' accounts and value of work, he was also extensively engaged in references and arbitrations. Living at that transition period between "measure and value" and "contract," these cases of disputed accounts were then more numerous, and caused more elaborate investigation, even for minor buildings, than now occur for buildings of the greatest magnitude. The opinion of Mr. Abraham, in such cases, was highly valued, and his co-operation sought for, while

his good temper and sunny cheerfulness of disposition tended materially to soothe, and often to overcome, apparently implacable resentments between hostile parties.

Mr. Abraham never held any public appointment, though he contested the appointment for the district surveyorship of St. Pancras, when Mr. Baker was elected by a small majority.

He brought up in his office many pupils and students for architectural fame, and there were, and perhaps are now, few offices in which they could better learn the general practice of the profession. In his office there was no reserve, no dull plodding at mere copying, no professional secrets, no jealousy of a youngster's progress in knowledge: the whole business of the office was thrown unreservedly open to him, in-door and out-door alike. Every opportunity which an extensive practice afforded for seeing the detail of works was freely given, and the pupil, by being early thrown upon his own resources, acquired confidence and experience. The more he exerted himself and relieved the master, the greater satisfaction was given.\*

To look forward to a fifty years' busy engagement in life, depending only on determined industry and integrity for a livelihood in a professional career, is an anxious and doubtful prospect: to look back on the same period and to see trials and difficulties surmounted; to have been able to retain the affectionate esteem of friends with whom one has started in life; to have obtained the personal friendship of clients; to have passed with unimpeached integrity the various transactions in a profession which brings the practitioner into immediate contact with all classes of life: to see a prosperous family around him, with children of the third and fourth generation, and to have preserved to the last a cheerfulness and gaiety of manners which old age and the cares of life too frequently chill, are all blessings and enjoyments which fall to the lot of few, but which were obtained by the subject of this memorial, Robert Abraham. T. L.

From the Abstracts the following information is deduced:—

Out of 369 bricklayers, 9 (i. e. 1 in 41 attained 80 years and upwards: the following appear the ages . . . . .	1 to 80 Yrs. 2 to 81 . . . 3 to 83 . . . 1 to 86 . . . 1 to 90 . . . 1 to 99
Ditto 162 masons, 2 (i. e. 1 in 82), do. . . . .	1 to 82 do. 1 to 85
Ditto 163 plasterers, 5 (i. e. 1 in 33), do. . . . .	1 to 82 do. 1 to 83 . . . 1 to 84 . . . 1 to 85 . . . 1 to 88
Ditto 870 carpenters and joiners, 53 (i. e. 1 in 16), do. . . . .	15 to 80 do. 3 to 81 . . . 8 to 82 . . . 3 to 83 . . . 4 to 84 . . . 1 to 85
Ditto 370 smiths and engineers, 6 (i. e. 1 in 62), do. . . . .	1 to 86 do. 1 to 87 . . . 4 to 88 . . . 1 to 89 . . . 3 to 90 . . . 3 to 91
Ditto 180 plumbers, 1 (i. e. 1 in 18), do. . . . .	1 to 92 do. 1 to 94 . . . 1 to 96
Ditto 348 painters and glaziers, 3 (i. e. 1 in 116), do. . . . .	2 to 80 do. 1 to 85 . . . 1 to 87 . . . 1 to 90 . . . 1 to 92
	1 to 82
	1 to 81 do. 1 to 83 . . . 1 to 84

## AN ARCHITECTURAL TRIP IN BELGIUM.

HAVING within the last month made a tour through the principal cities of Belgium, I have to offer a few notices on the architectural works in progress, or recently completed.

At Ostend, a new custom-house, for examining travellers' baggage, has been erected on the quay, close by where the steam-boats bring up for disembarkation. The upper floor of this building, called the "Salle d'Attente," is occupied by an excellent coffee-room, with every convenience for refreshment, cleanliness of person after the voyage, and remaining until the trains are ready to depart; making it unnecessary for any traveller who wishes to proceed onwards, to avail himself of hotel accommodation.

Bruges remains nearly in its usual inanimate condition. One of the fine old spacious houses in the Rue de Flandre has been deprived of its massive and mediæval character, by the ruthless hand of the modernizers, in spite of the reclamations of all the antiquaries of the city. "The Salle" of St. George has had the characteristic doorway, with its ogee-arched top and fleurons, cut away to make a larger opening into a flat lintel. The beautiful iron work on it, engraved in THE BUILDER some time since, has disappeared. The chapel of St. Sang is the only edifice that offers any evidence of care. The new stained glass windows are now completed and placed. The

## STATISTICS OF BUILDING OPERATIVES.

THE Builders' Society of London have compiled some tables, with a view to furnish the best answer that could be obtained to the question, "Does the general average of life among the operatives of the building trades run parallel with the general average of all classes, upon the expectancy arising from which the Government Tables for Deferred Annuities have been calculated?" so as to render it advisable for these classes to avail themselves of the provisions of Savings Bank Act, 3 & 4 Wm. 4, cap. 14, and to purchase Deferred Annuities. The tables are necessarily only approximations to truth, and show some singular discrepancies, but will nevertheless be found valuable. We reprint some of them.

Table showing Rate per Cent. of Mortality of the Building Operative Class in comparison with General Average of Mortality among all Classes.

Ages.	Average of 2,400 Lives: Bricklayers, Carpenters, &c.	General Average of all Classes. 11,705 Lives.
Under 25	4.9	6.7
25 to 30	7.1	7.3
30 to 35	8.9	7.9
35 to 40	9.5	9.3
40 to 45	11.1	9.4
45 to 50	10.3	8.9
	51.4	49.4
50 to 55	9.6	8.9
55 to 60	9.5	8.7
60 to 65	8.8	8.7
65 to 70	8.2	8.1
70 to 75	6.7	6.7
75 to 80	3.8	6.1
Upwards of 80	2.7	4.1

Table showing Rate per Cent. of the Ages of Building Operatives absolutely of age, compiled from the Returns of 22 Master Builders. Aggregate number returned, 4,804 Men.

AGES.							Above 60
	20 to 30	30 to 40	40 to 50	50 to 55	55 to 60		
Rate per cent.	32.2	12.5	19.5	14	9.9	0.5	

wall of the tribune, or the side chapel, where the pial containing the miraculous fluid is offered to the lips of the devout every Friday, has been painted in rich ornamental pattern, with a profusion of gilding. The design is in harmony with the epoch of the erection of the edifice, A.D. 1150. The chapel itself is in process of internal decoration, of a more enriched design, in which the surface is panelled into lozenge forms, on a large scale, each filled into a kind of heraldic pine-apple. Some of the windows of the singular staircase which leads up to the chapel have been filled with a very good collection of ancient stained glass, formed of small circular pictures.

The new railway station at Ghent is now completed. It consists of two long parallel ranges of offices built with what is called in Belgium, "Pierre Bleue;" between which the roof spans the space where the trains arrive and depart. The ends of each range of building are of very bold and massive character, reminding one strongly of Rubens's designs for arches and portals, as seen in his sketches and pictures. Thus they possess a kind of national type to those who are acquainted with the works of the great Flemish painters. The cast-iron columns and brackets for the lamps are of very tasteful design and ornamentation: the pediments of the roofing are also of cast-iron, of a very ingeniously interlaced pattern richly combined. In the city itself no change is apparent. The "Beffroi" is denuded of the famous dragon, which surmounted it as a vane, said to have been

\* As an instance of the high appreciation of benefits derived, and of the affectionate esteem in which Mr. Abraham was held, by those who had been professionally educated in his office, it may be mentioned that, in the year 1843, a valuable gold snuff-box, appropriately inscribed, was presented to him by his pupils then practising in London.

\* i. e. 94 per cent. of the number of men at work are under 50 years of age.



brought from Constantinople by her crusaders. It will be replaced when rebuilt. The gateway and the towers flanking it, of the "chateaux" of the courts of Flanders, built in 1180, remain in a most neglected condition. Several portions of architectural interest still exist in the interior, such as vaulted chambers, and part of an arched corridor with columns, apparently occupied by a very miserable population. When so much care and anxiety appears throughout the entire kingdom, just nationalised, to preserve their historical antiquities, it seems a matter of surprise that this, one of the most important monuments in the country, should excite so little attention for its preservation. The *Maison des Bateliers*, formerly engraved in *THE BUILDER*, is in good order, and seems respectably inhabited: the ancient corn granary, adjoining, retains the primitive features of its erection in 1323, and is still only entered by a long ladder from the street. It may not be out of place to advise the traveller who may loiter for a day or two in Ghent, to visit the museum of Mr. D'Huyvetter, in the Rue Haute Porte, near the Hotel de Ville. This gentleman possesses the most extraordinary collection of mediæval pottery and glass perhaps ever formed, besides other remarkable curiosities of middle-age art. Ready permission is given to view it by respectable persons presenting their card.

At Brussels, the renovation of the spire of the Hotel de Ville is nearly completed to the base: it is intended to fill all the vacant niches with statues. M. Durtet, of Antwerp, has been charged with the execution of those over the principal gate, under the tower. At Schaerbeek, about a mile beyond the Boulevard, to which the splendid new street, the "*Rue Royale extérieure*," extends, a large church has been commenced, of the Byzantine style, which promises to be a fine and an extensive specimen in its class.

The external repairs of the collegiate church of St. Gudule are progressing. The interior was fitted up for the funeral service of the late Queen, with wondrous prodigality. Every column was encased with fine black serge; enormous black draperies, with white fringes, completely filled the arches, and were attached to the columns like curtains: besides this, every flat space throughout the church was clothed in black, leaving only the architectural tracery visible. In the centre of the sacred edifice the grand catafalque was erected on a platform, ascended by several steps, guarded at the angles by colossal angels, covered with silvering, and protected by a canopy ascending nearly to the height of the interior. The draperies of this portion were fringed with silver bullion, a quarter of a yard in depth. Altogether it was an extraordinary display, and it is computed that more than thirty thousand yards of black serge were employed in the fitting up.

The Church of St. Joseph, outside the Boulevard, in the Quartier Leopold, is finished, and open for divine service. The style of architecture is Roman, having two campaniles at the grand entrance. The windows on the sides have tracery of analogous form to the style of the edifice: the internal decorations are still incomplete. The architect of this church is M. Suys. The orientation of churches in Brussels seems never to have entered into the calculations of the builders: this new church has its entrance from the north, and the altar is consequently to the south. The other churches of the city are built in all directions of the compass. After many discussions and propositions, the park has been inclosed with an iron-railing of no artistic pretension. The "*basse-fond*" in the Rue Royale has been the subject of much inky contention, and at length it has been determined to construct a terrace and erect a column thereon commemorative of the Revolution of 1830. The first stone was laid last September with great ceremony, and since, a good deal of the balustrading to accompany the monument has been placed. A new street is being formed to lead thereto from the lower part of the city, near St. Gudule.

At Malines a new and very handsome entrance to the city from its great railway station has been constructed. It consists of two handsome lodges with iron railings, the spearheads and ornaments richly gilt. In the great square opposite the ancient "*Halles*" a statue

of Jeanne of Brabant, by Geefs, has been placed, surrounded by iron-work of exquisite design, and partially gilt. The palace of Pitzenbourg has been razed to the lower story, and its doorway and pilasters now form an inclosure to a public botanic garden that occupies the former site of the building and grounds.

There is nothing to report at Antwerp, excepting that the parapets and buttresses of the cathedral are undergoing repair: the stalls in the interior are not yet finished, and will probably occupy a couple of years more. At Louvain, the town-hall has had its elaborate sculptures minutely restored, and with its hundreds of figures has again become "*the Holy Scriptures carved in stone*." The 260 empty niches are intended to be filled with statues, when it will certainly become the very gem of mediæval architecture.

Liège always offers great interest to the architect and the antiquary; possessing some of the earliest ecclesiastical edifices in Belgium, besides the palace of the prince bishop, and the famous antiquarian puzzle of the "*Peron*." This latter column has for some time been placed on a suitable pedestal in the open space opposite the town-hall. On each side of it, at a few feet distance, a fountain of considerable proportion, and of some elegance, has been constructed. These fountains are entirely of cast iron, richly ornamented. The church of St. Jacques, remarkable for the profusion of its internal details, and its painted windows, is undergoing an internal renovation by scraping off the successive layers of whitewash which concealed the stone work: some examples of painting have been discovered beneath. A large folio work in fifteen plates, containing elevations, sections, and details of this church, admirably executed, has just been completed by M. Delsaux, the architect, of the city.

The object of most interest in Liège is certainly the remains of the palace of the Prince Bishop, and the well-known quadrangle. The municipality of the city seems desirous of preserving this building from further degradation, and have therefore undertaken the restoration of the southern arcade in strict conformity with the remaining three sides. These latter are still filled with numerous stalls for the sale of small wares, particularly fancy smoking pipes, toys, &c., which add much to its picturesqueness and deprive the massive rudely sculptured columns, and deep vaultings, of their gloominess. In completing the southern arcade the city has also undertaken to erect a new provincial palace, containing numerous and handsome suites of apartments, capable of receiving the sovereign whenever he visits Liège, and for the general administration of public affairs, as its name implies. The style of this new front to the street partakes of the Early Domestic architecture of Flanders. It has been designed, and is now being erected, by M. Delsaux.

Since the destruction of the church of St. Lambert in 1795, the church of St. Paul has become the cathedral. The principal front is an overloaded specimen of Renaissance, at variance altogether with the rest of the building, and the bishop is desirous of destroying this incongruity by a new and harmonious facade. But as nothing can be done in Belgium without the inspection and approbation of a commission appointed by government to watch over the national edifices and antiquities—the gentlemen composing it consequently came to Liège to dine with the bishop and discuss the matter. The expense is calculated at a ridiculous amount, which can only be a fable emitted to exalt the bishop's munificence: however, it appears the dinner was so excellent, and offered such rarities, that the members of the commission, in rapturous admiration of the cray-fish of Namur, which appeared at the feast, at once consented to the proposed change, and the church of St. Paul is consigned to the architectural skill of M. Delsaux.

M. Avance, a publisher of scientific works on a large scale, has constructed a singular house for his establishment. It is built on a small superficies of ground against a very steep side of the hill which projects into the city. The first ascent is by a long flight of stairs, resembling that in the Round Tower of Windsor Castle. Here you meet with the first story: on the roof of this is a garden and ter-

race, and so you mount up stage after stage to the height of about 150 feet to the upper rooms, each story having a garden and terrace on the roof of the lower one.

As Liège is one of the most famous cities in the world for its manufactures of iron, it offers abundant proofs of skill in ornamental casting. Through the city hundreds of street-doors have iron work of admirable design fitted into all the panels, and usually painted in imitation of bronze. The beauty of these designs gives a richness and a luxuriance very remarkable to objects which with us are seldom any more than angular spaces, determined upon the surface of the door by a narrow moulding. In several parts of the city, and, indeed, throughout the cities of Belgium, cast-iron posts, made here, of handsome pattern, are placed to answer the double purpose of protection and as receiving boxes for letters, which are thrown in on the top of the post, and only withdrawn for delivery several times daily—the hour of each withdrawal being also indicated by a moveable figure. Letters are truly put into the post here, according to our vulgar expression.

The railway station at Liège is approached by a frightfully steep gradient, which is overcome by stationary steam power on the height, drawing the trains up the incline, and *vice versa*, by a rope. The sensation of dependence on a single rope does not beget very satisfactory thoughts during this oblique transit. On the other side of the city, a canal, with locks, has just been completed, to Maestricht. The necessity for this canal has originated in the river Meuse being during the summer months so deficient in water as to suspend the navigation. This promises to be of great utility to this busy and industrious city, which exports its productions to Holland, on the north, and to France, southwards, being happily situated for the development of its manufacturing activity and enterprise.

#### COMPETITION FOR SALFORD PEEL TESTIMONIAL.

THE committee at Salford for erecting a Testimonial to the late Sir Robert Peel advertised some time since for a design, the character of which, whether architectural, sculptural, or otherwise, they left entirely to the judgment of competitors. It was stipulated that the cost should not exceed 1,200*l.*, and that all the designs sent in should remain the property of the committee, to be placed permanently in the library of the Salford Museum.

The committee offered "50*l.* for that design, if any, which may be selected," to include all detailed drawings, specifications, and superintendence afterwards required; 25*l.* for the second in merit; and 10*l.* for the third. The first premium, it will be observed, is 10*l.* less than the ordinary commission on such an expenditure would be, saying nothing of travelling expenses. Should the successful competitor be an architect, living in London or any equally distant place from Salford, he will be out of pocket when the job is done. With sculptors it is different. The premium they are striving for is the execution of a statue at the sum named. The committee reckoned, probably, on the desire of architects to have the honour of being connected with a public monument, and it would seem they have not been disappointed. But "honour" will not feed men. "What is that honour? Air.—Who hath it? He that died of Wednesday.—Doth he feel it? No." But if one half the profession will work for this same "honour," the world will give them all its commissions, and leave the other half to starve and rot.

We are speaking, however, rather as to the system than of the Salford Committee, who seem to mean well, and who are entitled to praise for one regulation at all events, which is, that the designs are to be exhibited to the public for one month before the selection is made.

In reply to their advertisement, the committee have received designs from more than eighty competitors. Of these, fifty-two are architects and painters, contributing from one to five drawings each; and twenty-six are sculptors, who have sent thirty models. The exhibition opened on Monday last, but we must postpone notice of the designs till next week.



## DECORATION OF THE EXHIBITION BUILDING.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

At a meeting on the 16th inst. Mr. A. Salvin in the chair\*, Mr. Owen Jones read a paper "On the Decorations proposed for the Exhibition Building in Hyde-park;" "promptly," as he said, "by the fact, that the specimen already executed there had excited some attention from his professional brethren, and in some quarters met with very severe censure." As the paper has already appeared in the morning journals, we must confine ourselves to some extracts. The reader said,—

Of late years the employment and appreciation of colour has made most rapid strides throughout Europe, but England has lagged far behind, which is the more remarkable as her painters have long been renowned as colourists. The fault lies, I fear, with ourselves: we have too long neglected this essential portion of an architect's studies and practice. The interiors of our houses have been given over to the upholsterer and decorator,—many of them men of great taste and talent, I admit; but still we must regret that architects have not directed more of their skill and learning to this subject, and been prepared to lead rather than to follow. We are only now beginning to shake off the trammels which the last age of universal whitewashing has left us. Everything but pure white was considered universally, and still is by many, as wanting in good taste. The evidences of colour on the monuments of Greece were first stoutly denied, and then supposed to be the works of after-barbarous ages; and when this position was no longer tenable, it was said that the ancients, though perfect masters of form, were ignorant of colour, or at all events misapplied it. Men were reluctant to give up their long-cherished idea of the white marble of the Pantheon and the simplicity of its forms, and refused to regard it as a building coloured in every part, and covered with a most elaborate system of ornamentation. The architecture of our fine Gothic cathedrals has lost half its beauty from the absence of colour. He who without prejudice sees a Gothic building for the first time picked out in colour will be forced to admit that until then he had not understood or appreciated Gothic architecture. \* \* \*

The very nature of the material of which the building in the park is mainly constructed, viz., iron, requires that it should be painted. On what principle shall we do this? Should we be justified in adopting a simple tint of white or stone colour, the usual method of painting iron? Now, it must be borne in mind that this building will be covered on the south side and over the whole of the roof with canvas, so that there can be but little light and shade. The myriads of similar lines, therefore, of which the building is composed, falling one before the other, would lose all distinctness, and would, in fact, form one dull cloud overhanging the Exhibition: a line of columns, as even now may be seen at the building, would present the effect of a white wall, and it would be impossible in the distance to distinguish one column from another. This mode of painting would have the further disadvantage of rendering the building totally unconnected with the various objects it is destined to hold. May the building be painted of a dark colour, like the roofs of some of our railway stations? This, equally with the white method, would present one mass of indistinctness: the relief of the cast-iron would disappear—each column and girder would present to the eye but a flat silhouette.

Let us now consider the building painted with some pale neutral tint—dull green or buff. In doing this we should be perfectly safe, provided the colours were not too pale to be indistinct, or too dark so as sensibly to affect the eye: one could hardly make a mistake; yet, how tame and monotonous would be the result. It would be necessary that this tint—whatever we might choose—should be of such a subdued neutral character as to avoid a difficulty well known to mounters of drawings and painters of picture galleries, that, in proportion as you incline to any shade of colour, in that exact proportion you injure or destroy the objects it is intended to relieve which may have similar colours. To this, then,

should we be reduced—a dull, monotonous colour, without character. How unworthy would this be of the great occasion—how little would it impress the public—how little would it teach the artist—it would be to cut instead of patiently unravelling the knot.

We are now brought to the consideration of the only other well defined system which presents itself,—viz. parti-colouring.

This, I conceive, if successfully carried out, would bring the building and its contents into one perfect harmony: it would fitly carry out one of the objects for which this Exhibition was formed,—viz., to promote the union of fine arts with manufactures. It would be an experiment on an immense scale, which, if successful, would tend to dispel the prejudices of those whose eyes are yet unformed to colour, to develop the imperfect appreciations of others, and save this country from the reproach which foreign visitors, more educated in this particular than ourselves, would not fail to make, were the building otherwise painted. It would everywhere bring out the construction of the building, which, as I said before, would appear higher, longer, and more solid.

To produce this result it is essential not to make a mistake. Parti-colouring may become the most vulgar, as it may be the most beautiful, of objects. It is necessary, therefore, to proceed with great caution,—to calculate the effect of every step,—not to be misled by the appearance of any one portion of the building, but bear in mind always the effect the building will have when complete and furnished. I have not shrunk from treading a path beset with so many difficulties; and I willingly appear before you to meet your criticisms, and to weigh any opinions which the experience of my brother architects may suggest.

If we examine the remains of the architecture of the ancients, we shall find everywhere that in the early periods the prevailing colours used in decoration were the primaries—blue, red, and yellow; the secondaries appearing very sparingly. We find this equally in the remains of Nineveh, Central America, Egypt, and Greece; and throughout the Eastern civilizations generally we find also every where that, as time wore on, the secondary colours invading the dominion of the primaries, blue and red were supplanted by green and purple. In Egypt, in the temples built by the Pharaohs, blue, red, and yellow mainly prevail; while in those built by the Ptolemies the greens and purples take their places. In those of the Roman period colours are still further degraded to a dull and incongruous muddiness.

Among modern examples of the use of colour we may cite the Royal Chapel of Munich, where blue, red, and gold form the principal harmonies, as far superior to the other churches of the same city where the secondary and tertiary colours prevail. At Paris, in the church of St. Vincent de Paul, decidedly the most perfect specimen of modern decorations in any country, the colours are blue, red, and gold, separated by white. This church contrasts admirably with the decorations of St. Denis, St. Germain des Prés, and other churches of Paris, where the secondaries and tertiaries prevail. When the secondary colours were used, in the best periods, in conjunction with the primaries, they were generally confined to the lower parts of the building; following in this Nature, who uses for her flowers the primaries, and reserves the secondaries for her leaves and stalks.

In the decoration of the Exhibition building I therefore propose to use the colours blue, red, and yellow, in such relative proportions as to neutralise or destroy each other. Thus, no one colour will be dominant or fatigue the eye, and all the exhibited objects will assist and be assisted by the colours of the building itself. In house decoration we occasionally find a run upon one colour—we have a green room, a pink room, and a red room, &c. It would obviously be unwise to adopt any one colour for this building, when the contents will be of all imaginable hues from white to black. Discarding, on the other hand, the perfect neutral, white, as unfit for the occasion, we naturally adopt the blue, red, and yellow in or near the neutral proportions of 8, 5, 3; but, to avoid any harsh antagonism of the primary colours when in contact, or any undesired complimentary secondaries arising

from the immediate proximity of the primaries, I propose in all cases to interpose a line of white between them, which will soften them and give them their true value.

It is well known that if blue and red come together without the interposition of white, they will each become tinged with the complimentary colour of the other: thus, the red would become slightly orange and the blue slightly green. As all coloured bodies reflect some white rays, the white in juxtaposition by its superior force extinguishes these white rays, and we see the colours purer, at the same time that the white becomes tinged with the complimentary colour of that against which it is placed, thus further heightening the effect.

As one of the objects of decorating a building is to increase the effect of light and shade, the best means of using blue, red, and yellow, is to place blue, which retires, on the concave surfaces; yellow, which advances, on the convex; and red, the colour of the middle distance, on the horizontal planes; the neutral white on the vertical planes. Following out this principle on the building before us, we have red for the undersides of the girders, yellow on the round portions of the columns, blue in the hollows of the capitals.

Now, it is necessary not only to put the several colours in the right places, but they must also be used in their due proportions to each other.

Mr. Field, in his admirable works on colour, has shown by direct experiment that white light consists of blue, red, and yellow neutralizing each other in the proportions of eight, five, and three. It will readily be seen that the nearer we can arrive at this state of neutrality, the more harmonious and light-giving will a building become; and an examination of the most perfect specimens of harmonious colouring of the ancients will show that this proportion has generally obtained—that is to say, that there has been as much blue as the yellow and red put together; thus the light and the shade balancing each other. Of course we cannot, in decorating buildings, always command the exact proportions of coloured surface we require, but the balance of colours can always be obtained by a change in the colours themselves: thus, if the surface to be covered should give too much yellow, we should make the red more crimson and the blue more purple; that is, we should take the yellow out of them. So, if we have too much blue, we should make the yellow more orange and the red more scarlet.

In the present instance I must do this in the presence of the world at large. In ordinary cases the architect may shut up his building till it is complete: here the public will watch every step from the first to the last. On this account I invite you to suspend your judgment, and beg of those who have already seen the specimen of the building, or who may see the work in its progress, to banish constantly from their minds the objects by which it is now surrounded. It is evident to all that a yellow and blue column will appear very differently when seen with a carpet, or other hangings for a background, to what it does now with a background of deal boards and foreground of carpenters' benches."

In the course of a conversation (a somewhat lame one, by the way) which followed,

Mr. T'Anson objected to the underside of the girders being coloured red, the effect of which was that it distinguished sharply the longitudinal lines of the roof of the building; whereas the form of the roof in the centre compartment was not so satisfactory that it should be made too prominent. He referred to the decorations of Pompeii, in which colour was employed in a regular gradation, from a dark base to a lighter colour in the upper part of the walls, and inquired how the basis of the columns in the Exhibition Building would be coloured.

Mr. Jones explained that they would be invisible, and that the objects exhibited would complete the harmony of colour, and, in fact, render his proposed decorations quite subordinate. The red girders objected to by Mr. T'Anson had also been objected to by the Royal Commissioners, and (as we understood) would be abandoned.

A question was put as to whether some ornamental spandrels from the columns to girders in centre, as shown in the interior view which was exhibited, were merely decorative or structural.

Mr. Jones said they were decorative merely; he regretted to add that they had been rejected. The defect of the building was, that its immense nave

\* Messrs J. G. Hall, G. Morgan, and T. H. Rushforth were elected associates.



(1848 feet long) had a flat roof. Mr. Barry had suggested ornamental decoration by the flags of different nations in the angles, and the spandrels shown in the drawing had been proposed with the same object.

The Chairman regretted that the roof of the nave had not been made, as that of the transept was, hemispherical.

Mr. Digby Wyatt explained that there were structural and pecuniary difficulties involved in that point. The roof of the transept, as at present constructed, formed a perfect truss; but it would have been very difficult to apply the same principle to the great length of the building from east to west. What was perfectly safe in a short length might be weak in a long one.

#### SIGHTS AND SCENERY.

*The Princess's Theatre.*—The first part of *Henry IV.* is so well played here in all its parts by the Keans and the Kelleys, Bartley and Belton, Harley and Meadows, and we can so conscientiously recommend all who like the English drama to go and see it, that we have the less compunction in pointing out to the able artists attached to the establishment, the anachronism they exhibit in some of the scenery. Henry IV. reigned from 1399 to 1412. The architecture of "a Room in the Palace," in the first act, was not introduced till a hundred years afterwards; and the same must be said of "the Inn-yard at Rochester." The costumes are beautiful, and the acting, as we have already said, exceedingly good.

*Panorama of the Holy Land.*—The artists of the very successful panorama of the Nile, Messrs. Warren, Bonomi, and Fahey, have nearly completed a very interesting panorama of the Holy Land, from sketches made in the country by Captain Byam Martin and Mr. Bonomi. From Suez they will follow the route of the Israelites, and show the wells of Moses, Sinai, Akabah (a caravan starting for Mecca), the mysterious Petra, with the ruins at large, Jericho, Bethlehem, and Jerusalem. The interior of the Mosque of Omar, in the latter city, will afford a novel and striking subject for one of the pictures.

#### SEWER ACCIDENT, NORTHUMBERLAND-STREET, STRAND.

The death of two men has been caused by the rushing in of water to a large sewer now in course of construction at the end of Northumberland-street, in the Strand. The works, which have been carried on here for some time past, are for the purpose of connecting two sewers, one coming from Parliament-street and the other from Whitehall, through Great Scotland-yard. The object of constructing these sewers, and making them meet at the river's edge at the bottom of Northumberland-street, was (it is said) to prevent the Westminster sewers, heretofore discharged in the vicinity of the new Houses of Parliament, from contaminating the atmosphere in and around the new Palace; and, to do this, it was necessary to reconstruct the sewer coming down Whitehall and Parliament-street, and discharging itself in the Westminster main sewer, and make it meet at a point at the bottom of Northumberland-street, where the new Westminster sewer is intended to discharge itself. The sewerage is thence taken by a wooden tube, secured between piles, which, by the way, will be dangerous for barges, to nearly the middle of the river.

The cause of this accident may be briefly explained by the evidence of one of the witnesses at the inquest, Mr. W. B. Scott, clerk of the works under the Commission of Sewers. He said, the Victoria sewer, extending along Parliament-street, was intended to join another sewer, running into the river at Scotland-yard, the point of junction being close to the river. The Victoria sewer had to be carried across the mouth of the Regent-street sewer, and it was contemplated to effect this by an open cutting, the new sewer being on a level several feet lower. Some water from land springs had collected in the new sewer above the outlet of the Regent-street sewer, and the contractors were anxious to get this accumulation drained into the lower part towards the point of junction and outfall. Accordingly, and without the consent or knowledge of the officers of the commission, on Sunday they drove a heading or small tunnel under the mouth of the Regent-street sewer, and at a distance from

the bottom of several feet. The consequence was, that on Monday forenoon, the tide being in, the bottom of the Regent-street sewer gave way, under the pressure, and the water rushing in, the two deceased men were drowned.

The contractors for the works are Messrs. Humphreys and Thirk. The amount of the contract was nearly 8,000*l.*, but very much more than this has been spent,—and for what we suppose must be considered only a temporary measure.

At high water, the discharge from the sewer will be stopped by gates at the bottom of Northumberland-street, and some of the inhabitants of the neighbourhood are manifesting alarm at the probable consequence of a severe storm during high water, when there would be no escape from the flood.

#### ST. MARGARET'S CHURCHYARD, WESTMINSTER.

In the Report on Extramural Sepulture, page 8, Dr. Reid says, "that the state of the burying-ground around St. Margaret's churchyard is prejudicial to the air supplied at the Houses of Parliament, and also to the whole neighbourhood;" that "these offensive emanations have been noticed at all hours of the night and morning;" and that even "fresh meat is frequently tainted" by the deleterious influence of gases issuing from this same churchyard. I reiterate these facts here, in order to tell you as a sequel how very little good has followed their enunciation. One would have imagined that, with such statements as these before them, no parties, however much interested, could persist in keeping up—yes, in enlarging the amount of the putrescent and hurtful vapours referred to. Yet so it is. Graves are still opened in this corrupt and overfull ground. Human beings are still interred,—not in good fresh soil,—not in native dust,—but amid the undecayed *debris* of their departed ancestors. The old tenant is dispossessed by the new, who is laid down amongst his bones and the broken portions of his coffin. Lately, interments have again become more frequent here. I say again, because last year did have a little effect upon the numbers. The pestilence spoke, and was obeyed. Alas! that it should only have had obedience while present to enforce it. Now, three or four times a week do the inhabitants around behold the sexton on the look-out for another "resting-place."—searching-iron in hand, he traverses the ground, ever and anon staying to try what appears to be a "likely place;" not that he expects to gain a spot quite untenanted, oh, no—he knows full well that every inch is occupied; all he endeavours to do is to find a place where the coffin beneath are sufficiently decayed to allow of breaking up. If his borer get but an easy passage, it matters little whose skeleton it may pass through. A spot found, there ensues a scene to "human eyes disgusting"—a scene which it will be better to leave unnoticed; all that I would further observe about it being, that parties have been seen to pick up some of the human bones thrown up by the gravedigger, and take them off I know not where—most probably, however, to the shops that purchase such like commodities. This ground must be closed. Whether it would be advisable to pave it level, or to lay it out in a shrubbery, may well be an after consideration; the first thing is to get it shut up. I must say, however, that I should very much like to see it adorned with small trees and shrubs; and what a far better effect would they give the abbey than the nasty, irregular, uneven stones that are now scattered at various heights upon its surface. LE FEO.

#### SCULPTURE IN ENGLAND.

PERMIT me to make a few observations on the recent remarks in your paper on "The Neglect of Sculpture in England." As a sculptor I can well verify most of the statements, though I cannot quite agree with the writer that sculpture is on the decline in England. Painters have of late loudly complained that testimonials have turned from the canvas to bronze and marble; and it is certain that of late years we have in such matters received our due share of public patronage. Trade pursuits are not the only hindrance to its progress. Noblemen and gentlemen who, in Italy or abroad, are purchasers, are here absorbed in parliamentary or magistrate duties, or field sports. Our Government, again, is most fickle and contradictory, and either very pinching or very profuse. The whole of the exterior details of the New Houses of Parliament were entrusted to a provincial carver, under whom I well remember were several artists of talent and education, and student members of

the Royal Academy, who had to work as under-strappers—ornament men placed on the figure s, and sculptors on the ornament, producing at first the most inglorious confusion. The first statues and shields of arms and supporters were infamous; the pay was wretched. Although in the case of the Nelson Column details the pay was as bad, Government patronage was really the reverse of that of the houses. The designing artist of all the sculptural details of Mr. Railton's plan was put to one side, and the several items of detail were given at a niggardly price to four or six artists of conflicting styles, the architect having no power over his own work. Then again the same motley patronage in the case of the interior decoration of the new House of Lords, where, in place of there being a directing head in the case of the Magna Charta Barons, artists have been appointed unacquainted with the mediæval character and costume, so necessary to produce a proper work, to the exclusion of those best versed in such data. There is no doubt that the Royal Academy has not placed sculpture in that position with regard to space which such works required; and there has been a leaning of patronage to the so-called self-taught artist,—sometimes a man of the woods on some nobleman's estate, who has managed to surprise his lord and his neighbours by some grotesque effort in clay, stucco, or wood. Until the Government is more honest and liberal, sculpture must fight its way on under every difficulty. R.

#### ENGINEERING AND ARCHITECTURAL DOINGS IN IRELAND.

THE Drainage Commissioners of the Board of Public Works have received an estimate for the drainage works in the district of the Quille, in the county of Down; the amount of which is 19,000*l.*

The landed proprietors of West Carbery and others interested in the promotion of a railway to the Western Harbours of the county of Cork, met lately in the Court-house at Bandon. Mr. Nixon, C.E., has estimated the cost of a line from Bandon to Crookhaven at 395,000*l.*; steps are being taken for the furtherance of this object.

The directors of the Midland Great Western Railway purpose erecting an extensive hotel in connection with their terminus at Galway, and designs are, we understand, in preparation for same by Mr. Mulvaney. A segmental iron roof 400 feet long and 80 feet wide, is being constructed at the Galway terminus by Mr. Turner, of Dublin. Deck beam principals, 7 inches wide by  $\frac{1}{2}$  inch thick (in 4 lengths), secured to cast iron shoes; tie bars,  $2\frac{1}{2}$  inch section; the principals, 12 feet 6 inches apart, equal to 40 feet wide, of  $\frac{1}{2}$  inch thick rough plate glass to be continued the entire length of roof; scrap ties 6 inches, a lantern running through; centre link,  $14\frac{1}{2}$  inches by 13 inches wide, oval shape, into which the diagonal tie bars, main chord tie bars, and centre strut are secured; the roof to be covered with corrugated iron, 16 gauge. The cost will probably be 3,700*l.*

The Berehaven Union Workhouse, which was commenced in 1848, is rapidly approaching completion: it has been erected under the supervision of Mr. D. W. Murphy, of Bantry, and Mr. J. Downing, of Bereham. It is situated on an eminence: the style is Italian. The board-room and principal offices are in the front, the master's and matron's are in the centre of the building.

A new workhouse is proposed to be erected at Castlecomer according to the plans by the Poor-law Commissioners' architect, Mr. Wilkinson, and tenders have been invited.

The report of Mr. Tarrant, C.E., states that the stability of the lattice viaduct at the Nore has been fully tested for the past six months, no alteration in the bearings, or unexpected increase of deflection having taken place.

On the 19th November, considerable excitement prevailed in the town of Ballymoney in consequence of the introduction of gas into the houses and streets. The work was effected by Mr. Archibald Cameron, the contractor; the Earl of Antrim (the principal landlord) having given great encouragement. The Messrs. Campbell, McNabb, and Clark, of Greenock, fitted up the metal work for the contractor.





THE WESLEYAN NORMAL COLLEGE, WESTMINSTER. —MR. JAMES WILSON, ARCHITECT.



## DESIGNS FOR KNOCKERS.

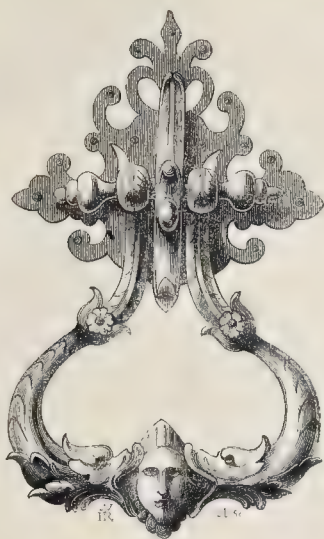


Fig. 5.



Fig. 6.

## THE WESLEYAN NORMAL COLLEGE, HORSEFERRY-ROAD, WESTMINSTER.

THE Wesleyan Normal College, which is situated in the densely populated neighbourhood of the Horseferry-road, Westminster, forms one amongst the important educational establishments recently erected in the metropolis. The purpose of the establishment is twofold—the training of schoolmasters and mistresses and the education of the children residing in the locality. It consists of principal's residence, college for students, school-rooms for children, and residences for under-masters. The buildings cover a space of upwards of five acres, and are represented by the accompanying engraving.

The *Principal's Residence*, seen on the left of the print, fronts the Horseferry-road, and, when completed, which is not yet the case, will contain committee-room, secretary's room, and library, ten rooms for the use of the principal, rooms for porter, &c. The front is built of Smeaton stone, with Bath stone dressings, and consists of three gables, divided by large buttresses, each gable having an oriel window, with tracery and embattled parapet, the angles terminated with gargoyles, for discharge of water from the lead flats. In the centre is a large, open archway, communicating with the college, and at either end the private entrance to house and committee-room.

The *Normal College*, for the accommodation of 100 students, is quadrangular in plan. In the front is a terrace, 8 feet in height, approached by a broad flight of steps. The principal entrance is central, beneath the oriel window of tower, and communicates with the (second) quadrangle of Practising Schools: the approach on either side to the interior apartments is by means of a corridor, communicating on the left with the head master's room, the three class-rooms, the lecture-hall, the male students' retiring-room, and the gymnasium. The lecture-hall, seen on the left of the first quadrangle, is 40 feet by 30 feet, and finished with an open timber-roof, with hammer-beams, the spandrels of which spring from carved corbels. On the right are the female students' retiring-room, mistress's room, and dining-hall, 50 feet by 22 feet, the ceiling of which is panelled with moulded ribs, and foliated bosses at the intersection. On the right, and on a level with the quadrangle, are the domestic apartments, with an entrance adjoining that to the principal's residence.

The first and second floors are appropriated to the male students' dormitories, approached by means of a stone staircase on the left. The female students' dormitories occupy the whole of the third floor, approached by a corresponding staircase on the right. These dormitories have a corridor extending the whole length of each floor (140 feet), with apartments on either side. Each student is provided with a separate sleeping-room, 9 feet by 7 feet, and 7 feet high, and ample provision made for lavatories and baths. The centre tower contains a large cistern for the supply of water to the dormitories. The invalid apartments are on the right, and the servants' and housekeeper's bedrooms over the dining-hall.

The principal feature in the elevation is the central octagonal tower finished with battlemented parapet and oriel window, two stories in height, in the lower part, over the doorway. On either side of the tower are three gables, with windows in each; and between the windows are gargoyles for conveyance of water from roofs. The lecture and dining halls form the two sides of quadrangle, and have buttresses to each principal of roof, with pointed traceried windows between; the whole finished with embattled parapet.

The *Practising Schools* are situated in the inner quadrangle, approached through the centre tower of college, an entrance from Peter-street, and a lodge entrance in Allington-street. The front of the schools is towards the south, and the plan consists of four spacious rooms, appropriated to infants of both sexes and senior boys; the dimensions 60 feet by 30 feet, and 20 feet high. Each school-room is furnished with a gallery and suitable furniture. There are eight class rooms in connection with the infant and junior schools, and two to each of the other schools, with a gallery in each room.

The two *Masters' Houses* are on the eastern side of quadrangle, and overlook the playgrounds, which are fitted up with gymnastic poles, &c., and surrounded by cloisters for exercise in wet weather. The quadrangle which faces the south is appropriated to the infant and industrial playgrounds, and the open space towards the east as a playground for senior boys.

The south elevation of the schools consists of a projecting centre gable, with an oriel window, and on either side are cloisters communicating with the belfry turrets at each angle.

The whole of the fronts, with the exception of that of the principal's residence, are of ordinary stock-brick, with stone dressings: it is to be regretted that a better description of brick was not used. The style is late Perpendicular.

The *Model School* is situated beyond the Practising Schools, towards the north-east (seen in the engraving in the extreme distance): the dimensions of this are 40 feet by 30 feet, and 20 feet high. Underneath the school, and of the same dimensions, is a covered playground, 7 feet high, with open arches leading to playground, which is fitted up for gymnastic exercises. This building being distinct from the rest of the design, the style adopted is Early English, with porch and lancet windows.

The building is heated with hot water, and lighted with gas.

The contractors are Messrs. Curtis, of Stratford, and the design has been carried out under the superintendence of the architect, Mr. James Wilson, of Bath.

## IRON KNOCKERS.

THE two additional knockers here given are, Fig. 5, from the Rue Jacob, Paris; and Fig. 6, from the Rue d'Enfer.

## NOTES IN THE PROVINCES, GAS, &amp;c.

THE foundation-stone of a new Baptist chapel was laid at West-end, Hammersmith, by Mr. S. M. Peto, M.P., on Friday in last week. The cost is estimated at 2,100*l.*, of which 1,000*l.* is already promised,—100*l.* of it by Mr. Peto.—On Thursday week, Little Harrowden church, Northampton, was re-opened, with the addition of a new aisle on the north side, a restored chancel, Caen stone reredos, open seats, vestry, and other improvements. The tower arch has been thrown open, and a gallery removed from the nave. The old carved chancel screen has been stripped of its twenty coats of paint and tar, repaired, and varnished. The church-yard has been extended, and new schools have been added to the church. The whole works have been executed, under the superintendence of Mr. E. F. Law, architect, by Messrs. Boddington and Warner, contractors.—The project for new markets in Durham is progressing favourably.—A valuable vein of lead ore has been found in a colliery near Durham.—A



new record office is to be built at Aberdeen, at an estimated cost of 4,400l.—Guisley parish church has been repaired and partly rebuilt. The reading-desk has been made to turn on a pivot.—The *Liverpool Times*, in allusion to a fear expressed by Baron Alderson, that the Courts in St. George's Hall would not be ready for several years, expresses an assurance that there will be no difficulty in completing them for the next spring assizes. The only difficulty, it remarks, is with respect to the approaches.—The exterior of St. Peter's Church, Liverpool, has been repaired, under direction of Mr. Pictou, architect, by Mr. Sanders, stonemason.—The small church of Thurloxton has been altered, by taking down the screen and removing the singing gallery back into the tower.—A correspondent of the *Hereford Times*, in drawing attention to what might be done for the improvement of that city, enumerates, 1st. The completion of the cathedral. 2nd. The formation of a cattle market. 3rd. The lighting of the suburbs with gas. 4th. The improvement of entrance from Wales at Eign-square, by removal of two projecting dwellings at Bowsey-lane. 5th. The abolition of the dangerous turnpike-gate at Wyebidge, and formation of a double gate with toll-house in the angle of the Ross and Abergavenny roads. 6th. The restoration of those abominable old almshouses in Widemash-street without.—The new church, in George-street, Oxford, intended as a chapel of ease to the Church of St. Mary Magdalen, was consecrated by the bishop on Saturday last. It is built of Gibraltar stone, with Painswick stone mullions and facings, and consists of one centre and two side aisles, with a chancel and vestry on the east side. The style is Decorated Gothic, with slated roof, and nave and aisles divided by pillared arches. The cost is stated by a correspondent at 2,500l. although we find it remarked in an Oxford paper that the estimated cost is stated in the subscription-list at 4,450l. The building was erected by Mr. G. Wyatt, of Oxford, builder, from designs by Mr. J. P. Harrison, architect. The number of sittings, free, is 450. All the seats are low and open. The nave, aisles, and chancel are laid with tiles, and within the altar-rail and baptistery with Minton's encaustic. Messrs. Minton presented 40l. worth of tile to adorn the walls. The west wall displays the Royal Arms, with those of the bishop and the vicar on either side. The chancel fittings, pulpit, &c. are of wainscot carved. The roof is of stained wood. The plastering of the walls is of a reddish colour, warmth of tint being given by a mixture of sands. The windows are filled with stained glass by Wailes, Warrington, and Hardman, and are chiefly gifts. Exteriously the south front parallel with the street is surmounted by a pierced ornamental parapet presented by the architect.—New schools for the accommodation of 150 boys, 150 girls, and 120 infants are about to be erected at Hythe, from the design of Mr. J. Messenger. They are Tudor in style, to be built of the local stone, the gift of—Deedes, Esq., M.P., with freestone dressings. They will have open timber roofs. A new church has lately been consecrated here. It is from the design of Mr. Sidney Smith. It is of the early decorated period, and consists of nave, north aisle, chancel, robing-room, and a double bell-cot over the western gable. It is built of rag with Caen-stone dressings.—For the construction of a sewer in Sidney-street, Cambridge, 44 yards long, 12 inches diameter, and 10 feet 9 in. deep, tenders were lodged by Joseph Coulson, who proposed to execute the sewer at 10s. 6d. per yard lineal, lateral drains at 3s. 6d., and junctions (6 in.), 2s. 6d. each; by John Bennett, sewer, 9s. 9d., lateral drains, 2s. 10d.; and by James Stevens, sewer, 10s. 9d., lateral drains, 4s. 3d. Bennett's tender was accepted.—The *Lincolnshire Times* states that in consequence of the dearth and badness of the gas at Lincoln, there are great complaints amongst the consumers, who wish to start a new company, and that one large firm is erecting private works with the assurance of having far superior gas for less than 3s. a thousand cubic feet. The mains of the company, it is said, are too small to supply the town satisfactorily under present circumstances.—Sir Richard Simeon has offered to make a free gift of the

shore ground necessary for the new pier and baths at Ryde. The ground-rent of the old pier is upwards of 40l. a-year.—The Fareham Gas Company, says a Hampshire contemporary, have not found the reduction in the price of gas, to which they were reluctantly driven, so serious an affair as they anticipated; but, on the contrary, the extra consumption of their light commodity has enabled them to offer considerable additions to the illumination of the town without any extra charge at all, and for this purpose fresh mains are being laid in some of the thoroughfares. An enlargement of the manufacturing machinery is also already requisite, and is about to be made.—The gas consumers of Evesham are formally intimating to their gas company that 11s. a thousand feet (!) is more than neighbouring towns are paying, and that the price must be reduced to 8s. 6d., otherwise they must relinquish the use of gas altogether. The only wonder is, perhaps, that this is still to do, or rather, that they have not already taken their own enlightenment into their own hands.—The northern staircase and a portion of the gallery of Stoke Church, Devonport, were destroyed by fire on Monday in week before last.—Mr. Neeld, M.P. for Chippenham, has presented to his constituents a market house and public hall, erected at a cost of 12,000l.—More notes on gas: our provincial authorities appear to be busier in trimming their lamps these dark nights, than in setting their churches, &c. in order: doubtless, they fear that in the dark the Pope may slip in. We earnestly hope, however, that his Holiness will not now be allowed to steal all our church decoration from us as he did before, leaving little else than mere bare walls and whitewash as good enough for Protestant worship. Seriously, we should not be surprised to find some now again indiscriminately attempting to check the endeavour, of late, to render Protestant places of worship worthy of the name, as a reflex and exponent of the honour and glory felt to be due to Him whose palatial dwellings they ought, even outwardly, and to the best of poor human ability and grandeur, to show themselves, in the eyes of men, to be. It was a false step, as well as a gross absurdity, to give up such a reflex of the honour and glory due to the King of Kings and Lord of Lords, whose "glory" even the starry firmament above and the flowery earth beneath display, in outward show, to mortal eyes,—and that too for no real reason but because Popes and Papiasts had the reverence, ay, and the good taste too, to encourage the display of decorative art in ecclesiastical architecture. But "more notes on gas" is a text for other discourse than this. Our few remaining notes this week relate to gas alone, and are of comparatively minor import.—The movement at Leeds for the establishment of corporation gas works, is leading to a like movement at Sheffield, where, as we lately said, much discontent exists as to present supplies, and many firms are preparing for separate gas establishments. In moving for a committee which has been appointed by the council, to inquire into the propriety of applying to Parliament for power to erect corporation gas works, Alderman Scholfield stated that he had before him the returns of a private establishment, in which, exclusive of original cost of apparatus, 51,064 feet of gas cost 1s. 5d. a thousand feet, deducting from which the value of the coke, the net cost left was 10½d. per thousand. The quality of the gas at Sheffield is more complained of than the price, which is stated at 5s. 5d. as the highest charge, in fact the main charge, and 3s. 11½d. as the lowest, though as to this latter, on which those interested mainly dwell, it is only necessary to stipulate for a quantity sufficiently large as the *sine qua non* of a price which might have been pitched at any figure, however small, as the extremely low, but altogether nominal minimum of the actual price. The charge to ordinary consumers is the only fair criterion. A Sheffield contemporary, in allusion to the present state of things, says, he "cannot at present understand that gas can be produced at a hundred separate establishments cheaper than at one central manufactory, possessing all the advantages which ample resources and the best of engineering talent can impart." Now, there cannot, as we have before remarked, be a question as to the fact that one such central manufactory can produce gas for a hundred establishments cheaper than such establish-

ments can do themselves: but do they supply it, accordingly, even as cheaply—not to say cheaper? The very fact that separate establishments do make their own gas, and that others are finding it to their advantage to follow such an example, notwithstanding that one central company can produce it for all so much more cheaply, and could sell it to all at least as cheaply as all can separately produce it—but don't,—is what so many justly complain of, the more so that it has been so often proved by compulsory experience on the part of gas companies, that when they do, the result is that it invariably increases their own dividends and enhances their own general interests, as well as those of their customers. Be it noted, however, that we have never argued for any one straight-laced system of prices to be made exactly to fit all circumstances: that would be absurd: we have only started and defended the broad principle that, in general, gas was far too dear, and that it would be greatly to the advantage of all, manufacturers no less than consumers and would-be consumers, were the general run of prices greatly reduced. And we have not only defended this principle, but established the truth of it, by compelling many companies, through the force of an induced public opinion, to undergo the experiment of successive and sweeping reductions, which, to their own astonishment, have uniformly proved admittedly successful, in their own greatly-improved position and prospects. These experiments are in full force of progress, and almost all we have now to do in the matter is to record the results, as we are ever doing, generally in the words of the directors themselves, or of our contemporaries of the newspaper press.—The price of gas in Keswick, says the *Carlisle Journal*, "is to be reduced from 8s. 4d. to 6s. 8d. per thousand cubic feet. This no doubt will lead to an increased consumption of gas, and we trust it will prove profitable to the lessee."—The movement for cheap and good gas is at work in Workop and Radford, where the price is 6s. 8d. and the dividend 5 per cent. A contemporary thinks the latter might easily be augmented under more liberal management as to the former.

#### HOUSE DRAINAGE WITHIN THE LIMITS OF THE METROPOLITAN COMMISSION OF SEWERS.

It is necessary to remind builders within the limits of the Metropolitan Commission of Sewers that, by a bye-law confirmed on the 6th inst., it is ordained, under penalties for omission,

"That fourteen days at least before beginning to dig or lay out the foundations of or for any house to be built after the confirmation of this bye-law, \* \* or to rebuild any house built or to be built within the said limits, pulled down or to be pulled down or to below the floor commonly called the ground-floor, the master builder, or other person employed to build or rebuild such house (or if there be no master builder, or other person so employed, then the person for whom or by whose order such building or rebuilding is to be executed), shall give to the Metropolitan Commissioners of Sewers, at their principal office, No. 1, Greek-street, Soho, in the county of Middlesex, written notice thereof, together with a plan or sketch, and necessary description, showing the particulars following, that is to say,—the level or intended level (as the case may be) of the cellars or lowest floor, the fall, material, form, construction, and situation of the drains to be built, constructed, or used for the drainage of, or in connection with, such house or its appurtenances; and also the outfall or outlet of every such drain; and the size, form, situation, and construction of the privies, water-closets, and cesspools to be built, constructed, or used for the drainage of, or in connection with, such house; and no such drain, privy, water-closet, or cesspool shall be built, constructed, or used, until the particulars so required to be shown have been approved by the said commissioners, unless the said commissioners do not signify their approval, disapproval, or other directions, within fourteen days after the receipt, at the said office, of the aforesaid notice and particulars. And it is hereby further ordained, that the master builder, or other person employed to build any house in progress of erection within the limits aforesaid at the time of the making of this bye-law (or if there be no master builder or other person so employed, then the person for whom or by whose order such building is erected), and the owner of every house within the limits aforesaid (that is to say, the person receiving, or who would be entitled



to receive, the rack-rent of such house, if the same were let at a rack-rent), the building whereof shall have been completed, but which shall not have been inhabited by any person as tenant or occupier thereof before the confirmation of this bye-law, shall, within one calendar month after the confirmation of this bye-law, give to the Metropolitan Commissioners of Sewers, at their said principal office, written notice thereof, together with a plan, sketch, and necessary description, showing "same particulars as set forth for houses about to be built."

The regulation does not apply to houses within the city of London. By a second bye-law, district-surveyors are required, subject to a penalty not exceeding 5*l.* for each breach, to "transmit, on Monday in each week, to the principal office of the Metropolitan Commissioners of Sewers, No. 1, Greek-street, Soho, in the county of Middlesex, so that the same may be received at the said office by or before eight o'clock in the afternoon on that day, a return, in the form hereunder specified, of all notices of building or rebuilding houses and buildings within the parts and places hereinafter mentioned, in the counties of Middlesex, Surrey, and Kent, respectively, received by him under the last-mentioned Act of Parliament, during each and every week ending Saturday, at twelve o'clock at noon preceeding such return."

#### LONDON IN TIMES PAST.

CONSIDERING the enormous, and in many parts demoralised, population of London, it is marvellous there should be so little personal insecurity, and it is rather a rare occurrence, for people in the habit of going about town, to meet with the slightest molestation, by day or night, comparatively speaking, to times past, as the following instances will serve to show:—At Kensington, on Sunday evenings, a bell used to be rung at intervals to muster the people returning to town, and as soon as the multitude had assembled sufficiently strong to ensure mutual protection, it set off. George the Fourth and the late Duke of York, when very young men, were stopped one night in a hackney coach and robbed, on Hay-hill, Berkeley-square. To cross Hounslow-heath or Finchley-common, now both enclosed, after sunset, was a service of great danger: those who ventured were always well armed, and some few had even ball-proof carriages. In those days there was a house on Finchley-common well known as the place of rendezvous for highwaymen. Fortunately these occurrences are now matters of history. The standard of wealth is no less changed than the standard of safety. Tavistock-street, Covent-garden, was once the street of fashionable shops, what Bond-street and Regent-street are now. Within memory, the principal carriage approach to old Drury-lane Theatre, the last but one before the present, was through that part of Drury-lane which is now a flagged foot passage, and called Drury-court, just opposite the new church in the Strand. The ring in Hyde-park, so celebrated in old novels and plays, and so often the scene of duels, was a short time ago still to be traced round a clump of trees near the foot barracks: it enclosed an area of about ninety yards in diameter, and about forty-five yards wide: here used to assemble all the fashion of the day now diffused round the whole park, and partially in the Regent's-park. At the rate the country is advancing in improvement and wealth, what will be the comparison at the end of the next half-century?—G. I. R.

**AUCTIONEERS' FEES.**—In an Exchequer case it has been recently ruled, that an auctioneer cannot charge his commission on sales effected by others, although his authority to sell be still unrevoked. In the case in question the auctioneer, Mr. Shuttleworth, had previously, but unsuccessfully, tried to sell the property (a house and land at Wimbledon) at auction. He had also got an offer for private sale, but was told the property had been already sold by another agent, named Mason, also employed by the plaintiff. Witnesses declared the custom to be in favour of such a charge, but could cite no instance of its being insisted on. Does not such a decision at once enable a seller to obtain the services of as many selling-agents as he likes at the price of one, though at the cost of all?

#### Miscellanea.

**DIGGINGS, FURNESS ABBEY.**—Our readers may remember that Mr. Sharpe, in his paper on Furness Abbey, read when the Archaeological Association went there, asserted that the *Hospitium* (or reception-room for strangers) was on the south side of the Conventual church, running in a southerly direction. On that occasion some slight excavations had been made, which proved, by laying bare a column, that a building had existed. The question, on the minds of many who were then, and probably still are, opposed to Mr. Sharpe's view was, what kind of a building was it? He also maintained that the windows of the *Hospitium* did not overlook the cloisters, but were placed on the opposite or western side. Also, that the building was usually of great length. In these views, Mr. Sharpe differs, *in toto*, with the opinion of all the historians of Furness Abbey, who generally place the *Hospitium* near the Guest's Chapel. A fortnight ago an exploring party made some excavations at Furness, and established, in confirmation of this opinion, the existence of a building, of great length, laying bare several of its columns. Three of the columns were laid bare, and were found to be equidistant. Mr. S. was of opinion that the building would be found to extend to two hundred and fifteen feet, representing fifteen columns, equidistant, and on excavating at that extreme distance an octagonal column was found with feathered masonry on each side.

**BRITISH ARCHÆOLOGICAL ASSOCIATION.**—On the 11th inst. Mr. Pettigrew, V.P., in the chair, Mr. Pratt exhibited several interesting antiquities, amongst them a picture supposed to represent the massacre of the 11,000 virgins near the city of Cologne. Such a picture, taken from a Spanish galleon, is described by Howell, and he says it was exhibited at Westminster in the time of James I. From this description Mr. Planché was inclined to think that the picture then exhibited was the very one now produced. A communication was received from Mr. E. Sharpe, describing some excavations undertaken on the site of the *Hospitium* at Furness Abbey, during the last month, which is noticed above. The rubbish accumulated on the floor, appeared to be the ruins of the building undisturbed, and is of a depth of from 5 to 6 feet: a considerable quantity of burnt wood upon the floor appears to indicate the firing of the building before it fell. A full account of these discoveries, with additional information respecting this ruin, obtained from documents now in France, will appear in the next number of the society's journal. Mr. H. S. Cumming read a paper upon the history of the drill and drill-bow.

**ARCHITECTURAL INSTITUTE OF SCOTLAND.**—The second meeting of the Institute was held in the Hopetoun Rooms on Thursday evening last week. The Very Rev. Edward B. Ramsay read a paper "On the Method by which the Members generally may practically follow out the Architectural purposes of the Institute." Mr. David Cousin next read a paper, entitled "What will it cost?" showing the evil effects resulting from the prominent and almost exclusive consideration often given to the element of cost in the erection of buildings, to the sacrifice of elegance and beauty in the design.

**PROPOSED ALTERATION OF THE "LONDON MECHANICS' INSTITUTION."**—I was glad to see an announcement in your journal of a proposal for forming the now London Mechanics' Institution into a college; partly because it has long been in my mind to call the attention of your readers to the desirability of the formation of a people's college, and this seems to be a favourable opening; and partly because I think it will be the means of making that institution more really and permanently useful than it is at present. The object of my addressing you is to urge the adoption of the proposal upon the present members, and to assist in keeping the thing before the public, as probably that will be one of the best means of promoting its success. The present institution is in many respects a misnomer, for there are but few ordinary mechanics who can afford the expense of its high subscription and the extra charges for the classes. Besides, the

kind of information which is, I think, most needed by mechanics and others of the same class, is not that which partakes of the superficial and general, but that which assimilates more nearly to an educational drilling; and it appears to be the object of this proposal so to alter the present institution as to divest it of its general character, and to give it this educational aspect, and by this means fill up the chasm which now exists between our ordinary day-schools and those seats of learning usually called colleges, now confined to those who are able to devote their days to study, while the formation of this Birkbeck, or People's, or Mechanics' College, call it what you please, would give those whose days are occupied by business the opportunity of getting, what Charles Knight calls somewhere "special education," viz., a sort of college course.

#### MECHANIC.

**WIDE ESTIMATING.**—Half-a-dozen correspondents have sent us the list of tenders for taking down and rebuilding the "Artichoke" wine vaults, Clare-market (Mr. Tatlock, architect), but publication seeming to have no good effect, we do not print it. There were twenty competitors, and the quantities were supplied to all. The highest was 1,010*l.* 15*s.* 11*d.*, and then they went down in regular progression to 528*l.* 1 Mr. Treherne's was accepted at 617*l.*

**OLD-STREET EXTENSION, AND NEW OXFORD-STREET JUNCTIONS.**—The necessity of this line of communication from Shoreditch to the western districts of the metropolis has long been felt, and is becoming daily more apparent. No other proposed new line of street possesses greater facilities for construction: it is already formed up to Goswell-street, where the screen wall of the Charter-house grounds cuts it short. It would then pass through St. John's-square, and cut Victoria-street at right angles, thence by King's-row to New Oxford-street. The character of the property through which it would pass is of the most inferior description, and the length of new-street would only be about five furlongs. It would greatly relieve the City-streets, now wholly insufficient for the traffic, and, if continued the full width of Old-street, would form a noble line from the west and south-west districts to Shoreditch, Hackney, and the Eastern Counties Terminus.—ARCHITECTUS.

**STATE OF CLERKENWELL COURTS AND ALLEYS.**—I would invite public attention to the condition of Bell-alley, Rose-alley, Fryingpan-alley, Lamb-court, Cock-court, and Broad-yard, Turnmill-street. To most of these courts there is but one entrance, this is under 3 feet wide,\* in fact, two persons can scarcely pass; the houses are three stories, about 30 feet high, let in different tenements: men, women, and donkeys find a shelter together, and a scene of squalid misery and moral degradation, that would vie with old Paris, or the closes of Glasgow, presents itself to the philanthropist,—a scene that would shame this boasted centre of civilization, and be a scandal to the nineteenth century.—S.

**WROUGHT-IRON BEAM-PLATES.**—In our last number we copied from the *Gateshead Observer* a notice of beam-plates manufactured at the Derwent Ironworks for Messrs. Tod and Macgregor, of Glasgow. We have seen these extraordinary specimens of labour. At the station of the Edinburgh and Glasgow Railway there lay four beams of malleable iron, oval shaped and closely wrought, measuring 17 feet 6 inches in length, 4 feet 8 inches in extreme breadth, and 1½ inch in thickness. The weight of each is about 25 cwt. And all this comes from the hand, or "rolling,"—not by fusion or casting.—*Daily Mail*. [The paper referred to states, as to the clipping of this beam into shape, that with a simple pair of scissors the required figure is cut out of the sheet of iron with as much ease and nonchalance as a thrifty housewife, after she has read the *Observer*, clips it into a "pattern."]

**THE ROYAL EXCHANGE, LONDON.**—The principal merchants and brokers of London are moving to have the area of the Royal Exchange covered in with glass, so as to afford shelter to the merchants when on 'Change. We urged the necessity of this long ago.

\* The Buildings Act provides that every alley shall be 20 feet wide, or as wide as the houses may be high, and have two distinct entrances.



**THE IRON TRADE.**—The “means devised and adopted to prevent the further continuance of the pernicious scrip system in Scotland” must have been pretty stringent, as they already begin to operate in the tumbling down of extensive businesses hitherto kept afloat on bladders of “scrip.” Scottish pigs, too, appear to be already assuming a somewhat more buoyant state in the midst of the scrubbing through which they are being stripped of their “pernicious” scurf. It is questionable, however, whether the English or Welsh obesity of over-production be much less pernicious to the health of the trade than the mere flatulency complained of in Scotland. The Welsh are still engaged in starting new works, and some of them call this a “cheering upward move.” True, one of these prophets, Merlin, to wit, is boasting of a large foreign contract for rails, but old works, one would think, could swallow up two or three such contracts, at least, and be none the worse, in appetite for more. Besides, the export returns of last month show a decided falling-off even from those of the same time last year; and, moreover, it is reported that the iron trade in France is greatly on the increase. It may interest our own particular class of readers more, however, to know, in the meantime, that “iron of different makes is being continually sold, through commission agents and by other indirect channels, upon terms that would not be entertained if offered directly at the works.”

**RAILWAY JOTTINGS.**—Out of about 300 notices in the *Gazette*, for applications to Parliament for proposed railway, water, gas, and other schemes requiring its sanction, plans were deposited for only 104. The greater number, however, require no plans. The first deposit was for the “Melton and Driffield Junction Railway,” and the last, within ten minutes of the doors being closed, was for the “Buckhurst Railway.”—The first sod of the Hereford and Shrewsbury line has been laid.

—At the Bradford County Court, the Court have supported the Midland Railway Company in their refusal to carry coals for a coal owner who had refused to pay a demurrage agreed on for allowing his coal to stand for a certain time in the company's waggons, and decided that the latter had a lien on the coal in their possession on that account. The action was brought by the coal owner to compel the company to carry his coal at the proper carriage price.—In reference to late experiments, with iron permanent ways, the *Standard* says, “The effect of the solid road, as compared with a yielding road, is to increase the effective tractive power, and increase the steadiness of the engine and train, and by that means to cause a reduction both in the cost of locomotive power and repairs of engines and carriages. The evil of the stone-block system is not rigidity, but the looseness of the chairs upon them, which produces unevenness, and causes each wheel of the engine, tender, and carriages to have the effect of a blow upon the ends of the rails. This defect cannot take place when the block and sleeper are cast in one, or when the sleeper, chair, and rail are combined in one. Offers have been made by eminent contractors to maintain the iron road at a much reduced amount, as compared with the wooden road; so much so, as to include the renewal, as well as the maintenance, in the sum now paid for maintenance alone.”

**FALL OF A PORTION OF KING'S-CROSS TUNNEL.**—On Monday last, in making ready the cill in course of tunnelling towards the permanent station of the Great Northern line, at King's-cross, where the old Small-pox Hospital has been demolished, to make way for the permanent station, a large mass of dry, clayey earth gave way, and killed one of the miners, besides slightly injuring several others.

**MONUMENT TO TITIAN.**—The ex-Emperor of Austria, in one of his visits to Venice, ordered the construction of a monument to Titian. He left the Academy of Venice the choice of form and site. The Academy confided the monument to one of its members, M. Zandomeni, professor of sculpture. This gentleman's design is on rather a colossal scale. It comprises a large statue of Titian between two allegorical figures. The monument is to be placed in the Church of St. Mary of Frari, near that of Canova. It will be inaugurated, in about a year's time, with great pomp.—*Leider*.

**INSTITUTION OF CIVIL ENGINEERS.**—The report read at the annual General Meeting, on the 17th inst., urged the necessity of organisation amongst the great body of the civil engineers generally, as well for the purposes of professional advancement as for protection of their interests,—their rights and privileges,—which had of late been invaded by persons not regularly brought up to the profession. It was shown, that as this institution was the most natural, so it was the only ready means, by which this desirable end could be properly and effectively carried out, and how absolutely essential it was that it should receive the cordial support of every civil engineer who had the honour and credit, both of himself and of his calling, sincerely at heart. The same necessities which had, many years ago, called this institution, the first of its kind, into existence, had lately induced the establishment of similar societies in several chief towns of Great Britain, and the spirit had even extended to foreign countries, where the evils of the centralization system, and of the interference of Government Boards, had been severely felt: all these societies had taken this, the parent society, as a model in nearly every particular. The number of members now amounts to 681, of all classes.

**HILTON'S CRUCIFIXION, LIVERPOOL.**—A correspondent informs us that Hilton's “Crucifixion,” in the Town-hall, Liverpool, is so placed that it is suffering greatly from the sun and other causes, and will ultimately be destroyed if left there. The town-council should see to this: it is a fine work, and should be carefully preserved. Additional interest will attach to it when the large engraving from it, which is now being executed for the Art-Union of London, at a great cost, to distribute as prizes, is completed.

**THE EDINBURGH SLAUGHTER-HOUSES** have been commenced. They are to be erected from the designs of the city architect, and the town council have agreed, by nineteen to twelve, to allow him 2½ per cent. commission on the amount of estimate, in addition to his ordinary salary,—the undertaking being considered not specially town's work, but a speculation between the city and the feshers.

**EXTENT OF LONDON.**—An American, who says our metropolis has filled him with amazement, asks us how many houses it contains, and how many miles of streets. It is stated on good authority that London has 300,000 houses, which cover an area eighteen miles long and seven miles wide. Between the 1st of January, 1839, and June, 1850, 64,053 new houses were built, forming 1,652 new streets.

**STATUES TO NAVAL CAPTAINS.**—A correspondent asks what has become of the grant of money obtained by the late Sir R. Peel for the erection of statues to Collingwood and Hardy. Want of a site was understood to be a difficulty in the way of the appropriation of it, but surely Trafalgar-square is not yet all used up.

**DRAINAGE AND WATER SUPPLY OF TOTTENHAM.**—The Local Board of Health have allowed the report of their surveyor, Mr. J. Pilbrow, C.E., to be published, in order to correct what is conceived to be misapprehension on the part of the ratepayers as to the cost, &c., of the projected works. In this report it is stated that the amount of the whole of the three compulsory rates required from those who both own and occupy property, would be 10½d. in the pound, from those who occupy and not own, 9d., and from those who own and not occupy, 1½d. The drainage rates, it is added, would decrease every year for the thirty years, and then cease altogether, except a very small fraction for repairs, &c. The rates in question, we need scarcely add, are those for both drainage and water supply to the whole district. The annual charges for the water itself are estimated at from 5s. to 40s., according to the class of dwelling to be supplied.

**DINNER TO SIR J. WATSON GORDON.**—The Royal Scottish Academy entertained this artist at dinner on Friday week, Professor Wilson in the chair.

**WATER-CLOSETS.**—Could not some of our manufacturers of water-closets produce a cheap substitute for the present sort of closets, with expensive cisterns at top, by making use of a hand-engine, similar to the beer-engine, to draw the water from the bottom.—W. L.

**THE ROYAL ACADEMY.**—At the eighty-second anniversary of the Royal Academy of Arts, on the 10th inst., the silver medal for the best drawings of the River Front of Greenwich Hospital was presented to Mr. Henry Cumings, and the silver medal for the next best to Mr. John Robinson. The president made no set address. It may be expected that architecture will fare better at the Academy this year than last, as there are two architects in the new council list, viz., Mr. Barry and Mr. Hardwick. The announcement of Mr. Jones's resignation, which we were the first to make (though denied by some of our correspondents), was perfectly correct. We believe we shall be found equally correct when we say that there will be several important changes attempted in the management of the Academy before long.

**LAMBETH NATIONAL SCHOOLS.**—On Wednesday, in last week, the first stone of Holy Trinity National Schools, Carlisle-street, Lambeth, was laid by the rector of St. Mary's, Lambeth. The site was given by the Primate. The schools are intended for 200 boys, 200 girls, and 100 infants.

**JASPER BRIDGE.**—A bridge for railway purposes is about to be constructed over the river at Sherbrooke, Canada, to consist entirely of jasper, of which unbounded masses are in the vicinity of that town. It is proposed by the railway company to prepare a block of jasper for the Industrial Exhibition.

**INCrustATION OF STEAM-BOILERS.**—A patent has been granted to a physician, practising in the metropolis, for a method of galvanically preventing the incrustation of steam-boilers by earthy matters, which appears to be still regarded as a desideratum, notwithstanding the various hopeful inventions already patented or otherwise published.

**PICTURE SALES, LIVERPOOL.**—It is stated that the sales of pictures this year, at the Liverpool Academy Exhibition, have produced nearly 2,000*l*.

**CONWAY AND BRITANNIA BRIDGES.**—On Thursday, 12th inst., the second lecture on this subject was given by Mr. Wheeler, C.E., at the Literary Institution, Ishington. A general description of the Britannia Bridge was afforded by a model about 11 feet long, portions of it being removed as required to exhibit its construction. Models of the 8 pontoons and apparatus for floating the tubes were prepared, to convey an idea of this operation.

**IPSWICH GRAMMAR SCHOOL COMPETITION.**—We are informed that about fifty designs were sent in for this building, and the committee, after several very long sittings, have selected that of Mr. H. Woolnough, of Ipswich, architect.

**ST. MARY'S CHAPEL, HAMPTSTEAD.**—The restorations and renovations of this chapel, under Mr. Wardell, are almost completed; and last week a statue of the Virgin and Child was elevated to its niche over the portico. The figure is executed in Caen stone, by Swales and Boulton, and is six feet in height. Our informant states that it is extremely creditable to the executors.

**PEEL MONUMENT IN LREDS.**—It has been determined to erect a bronze statue—8 feet 6 inches high, with a suitable pedestal of Aberdeen marble. The statue is to be executed by Mr. W. Behnes, sculptor in ordinary to the Queen. The price of the work has been fixed at 1,500 guineas.

**HOUSE-BUILDING IN THE BARRA KINGDOM.**—The houses are built of a stiff clay, worked up by being trampled in water until it is in a fit state for use. It is then put between two planks, separated, to form the thickness of the wall: having trodden down a layer, about eighteen inches thick, it is left to dry, supported by the planks, for some few days, the heat of the sun soon rendering it nearly of the hardness of brick: the planks are then shifted up, supported beneath, and a fresh layer of clay is again trampled down, and this is repeated till the desired elevation of the walls is attained. A house of 40 feet long, and 20 broad, divided into three rooms, and a dressing closet, was completed in less than three weeks, so far as the walls and roof were concerned; as for window frames and doors, there were none.—*Seven Years' Service on the Slave Coast*.







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# The Builder.

No. CCCCXII.

SATURDAY, DECEMBER 28, 1850.



THE intention we announced last week of increasing the size of our journal from sixteen pages to twenty-four, *without altering the price*, is a better evidence of our thankfulness for the favour with which our efforts to render **THE BUILDER** worthy of its purpose and the times have been received, than any words could possibly be. The additional expense will be considerable (a thousand pounds a year at least), but we look ultimately to obtain a return for this, through the increased circulation that we may reasonably expect will follow. The advantages that will result to our readers will be great. Catering for several classes, we have constantly been compelled, by our limited space and the necessity of touching upon all the subjects of the week interesting to any of these classes, to condense or shorten valuable papers, and often to omit notice altogether of subjects of importance. This will now be obviated, and we shall, further, be in a position to enlarge our scope, and to provide our readers with much general information bearing upon their avocations, studies, and likings. We shall be able to give greater space for reviews of books, reports of cognate trials, descriptions of useful inventions and discoveries, and essays on various branches of art, than we could hitherto afford; and in various other ways we expect to be able to minister to the pleasure and profit of our readers, to promote the interests of society, and to increase the efficiency of our journal. We shall, at all events, earnestly strive to do so, and we ask at all hands assistance and consideration.

We propose, amongst other new features, to give, at intervals, a series of portraits of leading Architects and Engineers, with memoirs and lists of their works. Our ordinary illustrations will, as heretofore, include ancient examples, practical details, and modern works, both at home and abroad. In the latter departments, we may venture to refer to the contents of the present volume as an earnest of the future. In this we have given views and particulars, amongst other recent buildings, of the New House of Commons, as originally finished by Barry; the Brighton Dispensary (Williams); the Artizans' Home, Whitechapel (Beck); the Bentinck Memorial, Nottingham (Hine); St. Peter's Hospital, Wandsworth (Suter); Kneller Hall Training School (Mair); the Friends' School, Bristol (Armstrong); Gloucester Savings Bank (Medland); Northampton Bank (Law); St. Aidan's College, Birkenhead (Wyatt and Brandon); the Nelson Monument (Railton); Surrey County Prison (Hill); St. Stephen's, Hammersmith (Salvin); Interior of Ware Church (the Editor); Railway Station, Bruges (Poyen); Trinity Schools, Margate (Caveler); Worsley Hall, Manchester (E. Blore); Alms-house, Boston, U.S. (Dwight and Bryant); Cliefden House (Barry); Prince Woronzow's Residence (E. Blore); Chapel of Consumption Hospital (Lamb); Hornby Castle (Sharpe and Paley); a Manchester Warehouse (Grogan); the '51 Exhibition Building (Paxton);

St. John's Schools, Liverpool (Hay); Vinters, Maidstone (Richardson); All Saints, Thirleby (Lamb); Interior of St. Mary's, Brompton (the Editor); the "Rumeshalle," Munich (Von Klenze); Bury Athenæum, &c. (S. Smirke); Independent Chapel, Boston (Lewin); Interior of St. Stephen's, Westminster (Ferry); Cloughanoddy Castle, Ireland (G. F. Jones); the Convent of Sisters of Mercy, at Cork (Atkins); Exeter Hall roof (Daukes); St. Boniface, Munich, (Ziebland); and the Wesleyan Normal College, Westminster (by Wilson).

Of our intention to maintain the character of our journal in this respect, we shall afford immediate proof by presenting to our subscribers, with the first number for the new year (in addition to illustrations of St. Stephen's, Walbrook), what we expect will be a fine view of the interior of the great Building in Hyde-park, now being prepared for the '51 Exhibition. The plan and external appearance of this we have already illustrated; and, as we were the first to lay before the public the design for the building originally issued by the committee of architects and engineers, so also shall we be first to publish a correct view of the interior of Mr. Paxton's edifice, which, notwithstanding some—what we must still consider—dangerous weaknesses, demanding grave consideration and revision, is one of the most extraordinary works of the age. Our view will be as large as two pages of **THE BUILDER**, and will be printed on separate paper.

When the Exhibition opens we shall not fail to make our readers acquainted with all matters there exposed which are likely to interest them.\* It will be the event of the year, and an event that will distinguish the year from all that have preceded it;† we shall seek to glean from it all that will tend to the improvement of dwellings, the advancement of art, the welfare of the masses, and the general progress of mankind.

There will be many other things to do, too. The window-tax must be beaten off, and sanitary measures carried forward; the advancement of the Operative must be cared for; freedom of thought in architecture advocated; and inventors be enabled cheaply to secure the results of their ingenuity by a reformation of the patent laws. We are prepared to play our part, if not efficiently, at least with honesty and zeal, in what will doubtless prove a stirring and momentous year; and we solicit the co-operation of all who feel with us the vast importance of the interests at stake.

GEORGE GODWIN.

**NORTH LONDON SCHOOL OF DRAWING AND MODELLING.**—An interesting exhibition of works of fine and industrial art, contributed from private collections, has been opened by the committee of the above school.

\* The Metropolitan Sectional Committee have all finished their duties. Many of the members of these committees have worked very hard, having been occupied for days in visiting claimants, to ascertain the propriety or otherwise of granting a space asked for. In Class 29, "Manufactures in Mineral Substances," and 30, "Fine Arts" (doubtless also in others), many of the claims have been cancelled, because the applicants were unable, or failed, to give the committees an opportunity of judging of the fitness or otherwise of the works proposed to be exhibited. An appeal to the committee of chairmen by any one of those who now find themselves able to rectify the omission, might still be useful. The total floor and counter space allotted to the metropolis is 72,082 feet.

† The stir abroad is very considerable. A friend, writing us from *Lille*, says,—"Everybody is curious here to obtain any information about the Exhibition of 1851. The cost of travelling to London, from *Lille* by Dunkirk, railway, steamer, &c.—is only about 13s.; so that all the *Lillois* purpose seeing London before they die. Industry is setting out an example which the ought to profit by. I strongly suspect that our English artists, sculptors, &c., who are unknown to foreigners, are quite capable of competing with the works of continental artists. I believe that the English school of painting has never yet played truant to the school of nature, as many on this side of the water have done. It will be refreshing to the lovers of art to meet with works different from the exaggerated styles to be met with in France."

## ON THE PAINTING OF THE BUILDING IN THE PARK.

I WOULD offer a few remarks upon a matter which is just at this moment exciting some attention,—namely, the mode of decorating the great exhibition room now building in the Park. Since the downfall of Gothic architecture in this country, the art of decoration has neither been studied nor practised, except by those who have pursued it as a mere trade, and worked without principles or any knowledge of the fine arts to guide them. In other countries the subject has received more attention, and fallen into the hands of a class of men better qualified—the artists, instead of the mere ornamentalists: with us, therefore, decoration is an entirely new art. The subject will not admit of any extensive illustration in a brief notice of this sort, but it ought not to require much argument to prove that it is to the principles of art we must look for the principles of ornament, since *picture* is clearly but an exalted species of ornament, having the most ornate things of the creation for its objects, and the most complete processes for its means; and it is equally clear that the entire neglect of the study of the one must have left an incapacity for the practice of the other.

I observe that the subject of decoration has been discussed at a meeting of the Royal Institute of British Architects, but without producing any remarks calculated to throw light upon it. Mr. Owen Jones remarks, "If we examine the remains of the architecture of the ancients, we shall find everywhere that in the earlier periods the prevailing colours used in decoration were the *primaries*, blue, red, and yellow, the *secondaries* appearing very sparingly." This is just glancing at early art, fine or decorative, as we find it everywhere in its rude state, and affords no information whatever; and saying that, whether in picture, architectural, or personal decoration, in one part of the world or another, among barbarians a barbarous taste prevails! Both art and ornament very naturally begin in crude unbroken colours, and in pursuing the history as well as the philosophy of the thing, we find them both to decline and end in a reckless and senseless combination, in which rules and principles are utterly confounded! An illustration of this truth is to be found everywhere in the course art and decoration have pursued, from the coloured diagrams of the earliest painters to the smudged daubings of the eighteenth century,—from the caves of Allora to the saloons of a London gin palace. It will always be more easy to deal with *three colours* than with ten, and to say that the first rude artists employed these three, instead of the more scientific mixtures, is not to furnish information, but to illustrate a fact known and proved by a thousand analogies.\*

The recommendation to adopt the primary colours, blue, red, and yellow, in decoration of the building in question, is decidedly objectionable. It is proposed to use these crude colours in such "relative quantities as to neutralize and destroy each other: thus no one colour will be dominant and fatigue the eye." To effect this the relative forces given to them by Mr. Field are to be adopted, and they are to be employed in the harmonic ratio of 3, 5, and 8. Thus the hollows or concaves are to be painted with eight parts of blue, the flats with five parts of red, and the edges of things with three parts of yellow. This, it must be said, *looks scientific*, and appears the recognition of something like a principle, but while there is no other than the authority of rude and early times to recommend it, and no examples which have the slightest relation in character, it may very well be suspected. But let us see farther what is said. "As one of the objects of decorating a building, is to increase the effect of light and shade," &c. Now it is clear that taking this remark in its direct sense, the design of the

\* It would lead us out of the track of our immediate inquiry, otherwise it might be highly useful, in looking at the history and philosophy of art, to examine and say how far the true principles of decoration (so to consider this attribute of art) were studied and practised, at certain periods of its progress and consummation, and how neglected and misunderstood in its decline, and the ruin brought upon it by the schism of the Bolognese school and its followers. The principles of effect practised by the earlier masters, that is, the attempt to produce effect by the mere allocation of colours, of lights and darks, distinct from what is understood by *chiaro-scuro*, and practised in the lower schools of Italy, is a subject which has scarcely been touched upon by any of the artistic writers.



architect is left to be completed by the decorator! This is surely not the case! Is it not more rational to conclude that it is the province of the decorator not to interfere in any way with the design of the architect, but as far as he is concerned, to further and carry out his conception, design, and intention? But let us apply the directions offered. "Following out this principle on the building before us, we have red for the undersides of the girders, yellow on the round portions of the columns, blue in the hollows of the capitals." In effect this treatment will render the hollows deeper, the flats or planes more glaring, and the projections or edges more sharp and cutting. Surely this can hardly be considered as computing with the design of the architect; unless, indeed, a compact had been made between him and the decorator, that what was left incomplete by the one should be furnished by the other. Let us consider, for a moment, the conditions under which the architect works, and particularly in the present case, and in the building in question. What are these "girders" which are to be rendered as conspicuous as possible by the most forcible colour we possess: red, for example. "Girders" we naturally take to be agents employed by the architect to support and keep together certain parts of the structure; that they are not essentially a part of the design and chosen for the purposes of display, but are matters forced upon the designer by necessity, and such as, if he could, he would be glad to dispense with. Yet we see the recommendation is to paint them red, and thus to give them conspicuity it is desirable to avoid, for if considered as ornament, they are but tributary, and not principal. It is evident that this is a mistaken view of the matter, neither supported by science nor common sense.

My objections to what is proposed lead very naturally to the inquiry of what I would offer in its stead. As a painter, my reply is ready and direct. I would treat the whole interior of the building, with all its parts and particulars, as a painter would treat his picture, which being made up of a number of objects of greater and less interest and importance to his subject, requires to be harmonised into one complete and perfect whole. I should, therefore, proceed to lower and tone down all the subordinate portions and points, so as to bring into notice those parts and particulars which give force and character to the subject, either in the sentiment of tone and colour, or in the objects which are to be the principal and leading features of the whole. Applying this to the work in question, the mode of proceeding is clearly before us. We have to neutralize and subdue all the parts and particulars which in any degree interfere with the proper and essential design; to keep matters of mere ornament in their places; and above all things to put such objects as girders as much out of sight as possible, in order that the main design and character of the work may become the more striking and apparent. This, without making any pretensions, is just the common sense of the thing, an article which, in Pope's estimation, although no—

"Science, is fairly worth the seven."

We shall see also, by looking at the nature of the building, and observing the quantity of light admitted, that weak colours will fully serve the purpose of decoration; that strong colours attacking the eye must be highly prejudicial to the effect; and that therefore the "primaries," blue, red, and yellow, ought to be dispensed with altogether. Pinks, tender greens, with a little orange,—the daylight and the glass supplying a variety of prismatic tints, will be found, if well disposed, all that can be required in the way of decoration. The whole of these tints, combined, ought to produce a neutral tone—a warm, tender gray, upon which the multiplicity of coloured objects exhibited will show themselves to the best advantage.

E. V. RIPPINGILL.

SIR,—As a friend of Mr. Gilbert French, who wrote the "Hints for the Arrangement of Colours," printed in your journal of the 11th of August, 1849, permit me to say, that, judging from Mr. Jones's lecture, the arrangement of colour urged in his "Hints" has been to a great extent adopted for the decoration of the

great exhibition building, and enforced by the arguments and authorities there previously used. Whatever may be said of their applicability in this case, I think it scarcely fair that Mr. French should be entirely unrecognised in the matter.

SUM CUICUE.

\* We have received several other communications as to painting the building, including one from Mr. Allen, further enforcing the suggestion made in his paper, which we recently printed.\* We are unable, however, to give them space. The last-named correspondent says truly:—"The subject of colour is one of extreme difficulty, and has not been treated as an art or science, but rather as one of precedent, and of precedent the most narrow and confined. The call now made for its aid must lead us to regret the absence of a theory of colour, such a theory as only a master mind can elicit. A true theory of colour would be a wonderful monument of human genius. No difficulty would be found if we had it: we should not refer to precedent, but refer precedent to it, and accept it or reject it accordingly. We should not be involved in perplexity, but work on with confidence, sure of our aim."

As relates to that portion of the building already painted, and the general arrangement adopted,—blue, white, and yellow, for the columns, and red for the underside of the girders, we feel it necessary to say that Mr. Jones has failed to convince us that the effect will be good, in face of the evidence afforded by our own eyesight. Moreover the principle adopted seems to us a wrong one. The building is a construction of iron and glass, and this fact should be properly set forth, not elaborately disguised. The iron columns, striped as they now are, are degraded into wooden posts, and the girders, painted red, come oppressively down upon the spectator, and seem much too heavy for their slight supporters.† In comparison with this arrangement, the one compartment which is painted a pale green looks quite satisfactory.

The artist asks his critics to suspend their judgment, and wait patiently the event; but we are not satisfied to do so, as alteration would of course be impossible. We sincerely hope that the matter will be further considered, as we feel sure that the present arrangement, if persisted in, will produce an unsatisfactory result.

#### A HISTORICAL ESSAY ON TASTE.‡

We will suppose our taste to be at present only what that of an ancient had become, who had been travelling in the south and east, and had not yet entered Greece. We will fancy ourselves full of Sphinxes, pyramids, Babels, and painted ramparts, ready to pour them out on the astonished Hellenic barbarians; and supposing ourselves to have had one of those convenient trances invented by romancers to get rid of time,—we will further imagine ourselves standing in view of the Acropolis of Athens. We are at once struck by the far superior proportion and harmony of the edifices which crown it, to that exhibited by those we have recently left. It is sufficient to bring forward the Parthenon as a model of Greek taste. The grand portico, the beautifully sculptured pediment, and the far-retreating perspective of the double row of columns, the whole backed up by a sky, in the words of the poet, so deeply, beautifully blue—and we must give the Greeks the credit of calculating on their sky—produce an effect not to be surpassed. In this building we observe proportion, grandeur, beauty, grace; but no absurdity. The columns do not carry, as in many modern buildings, a mere ledge of stone, useless and insignificant, but they sustain a superstructure of daily use for shade and protection, underneath which the people might retreat from the noontide glare, or take refuge when the gods talked to them in thunder—whither they might flee to their divine mercy, for protection from their wrath. Here then we have utility as well as magnificence: we have also a grand effect of light and shade, often too little considered in these days: we have colour taste.

\* See p. 530, ante.

† We inferred, from conversation at the Institute of Architects, that the red for the girders was abandoned (p. 503, ante); but we are told this is not the case.

‡ See p. 530, ante.

fully and submissively employed, and lending a tone and relief to the sculpture. In our climate such polychromy would be difficult to adopt, except by the use of material itself naturally coloured. Do we ask for a proof of the taste of the Greeks in sculpture, more than we have seen? Let us enter the Temple, and contemplate the awful statue of Minerva, by Phidias. Is it like the sphinx? Both are vast, and there the resemblance ends; but Minerva is, notwithstanding her size, eminently beautiful: she is, as she ought to be, chaste. It is chastity, purity of taste, that distinguishes both this statue and all that we behold around us; there is nothing ridiculously grotesque, nothing immensely useless, nothing striking only in deformity. Do we seek evidence of Grecian taste in painting? Let us go and see the birds pecking at Zeuxis' fruit, and Zeuxis himself deceived by his rival Parrhasius' curtain. Let us look at Apelles' visiting-card, a single stroke of his brush. Were these stories without foundation in fact, the mere invention of them would show how necessary the ancients thought the following of nature. Would we know the Greek taste in literature, in oratory? Let us go and hear the chorus with which Sophocles is defending himself, on a charge of insanity, from his son, so proving that a man who could write with his taste was certainly not mad: let us listen to Pericles reproving, soothing the people; to Demosthenes stirring them up against Philip. It is unnecessary to dwell upon these things; but it is hence to be observed that the ruling principle of Grecian taste in all the arts was purity,—that it resulted from a faithful study of nature, and so from a simplicity that allows of ornament only in an appropriate manner, and as it is suggested by the subject. The ruling idea is never obscured and buried by fragments of foreign ideas: thus unity is preserved; and it is from that unity of design alone that any thing like true grandeur can result; while it is the justness of adornment on that grandeur which lends the grace, the smile unto the face of Jove. The observance of this ancient taste suggests painful considerations concerning much of the modern. We often find a columnar display, a forest of stone posts of no utility whatever; these pillars more often supported than supporting; probably a dead wall behind them; and sometimes there also stare at us strange ornaments about as appropriate to the matter as Horace's dolphin in the woods. Where is the purity of taste in these things? Where is even the idea in such buildings? Verily, they rather represent the absence of idea, just as black does the absence of colour. There is nothing more hideous in architecture than a false front put on to conceal baldness, when you are compelled to look on a whole facade, not as an integral part of the building, but as a screen to hide incapacity. There is not time here to dwell on any peculiarities of taste, in those developments of Greek art that occurred among the Greek colonists on the coast of Asia Minor, or in the plains of the Xanthus. We are indebted to Sir Charles Fellows for the rescue of Lycian art from obscurity, and some curious specimens, especially of tombs, are to be seen where you have all often been—in the British Museum. For details on the subject, it may save time to refer you at once to his work.

From Greece taste travels westward with complete grace; it has redeemed its Oriental character at Athens, and become pure, and thus arises in Rome. As the Romans imitated the Greeks, we have little that is new to remark, but that taste by degrees acquired a more florid and flowing character than it had before possessed,—somewhat more, too, of variety, which may be considered an advantage, the only thing chargeable against Greece being a too great sameness. Roman taste, previous to its Greek era, was probably such as we should expect from a purely warlike nation; but when that warlike spirit was, in the language of the classic, itself overcome by what it conquered, then we find, as it were, Athens transferred to Rome, the Acropolis to the Capitol. In the later period of Roman architecture, we observe the use of the arch, the introduction of which form gives almost all other styles an advantage over the Greek. We find the taste of the Romans in the imperial age the taste of victors. They practised an immensity of design, of which there



are still many stupendous ruins to remind us. Their theatres were particularly huge, as we might gather from a fact mentioned in the classics, that as many as 50,000 persons were killed and wounded by the fall of a theatre hastily and improperly built for the sake of gain—a wicked speculation! There is also not only massiveness in Roman architecture, but what I would be allowed to call *multitude*. You have generally an endless succession and piling of columns and arches, which produce an astonishing effect by their very number. In many lands that once trembled at the thunder of Capitoline Jove, that dethroned god is now glad, as it were, to take refuge among vast and desolate ruins, where he sits in solitude, a mythological Marius on a foreign strand, and amid the temples of a strange creed. Complaint has been made, not indeed of his overthrow, but of the overthrow of the architecture that served him. It is true that together with some other styles the Roman seems to have been cast away into the intellectual lumber-room, which it is to be feared is somewhat too spacious. It may be found by the curious in the castle of Indolence, which it is our object, our duty, to besiege.

Great taste for the arts prevailed at a much earlier period than at Rome, in those parts of Italy colonised from Greece, at Syracuse and Agriguntum, at Posidonia or Pæstum, and many other cities of the southern coast. In Italy itself, the Etruscans seem to have had great natural genius for design, and are celebrated to this day on that account. We leave Rome, towards its fall, a city of palaces, abounding in all conceivable articles of taste and luxury; we go to look once more at the Colosseum, and the arch of Trajan, observing the beauty and usefulness of that form which the Grecians either knew not, or did not use; we hurry away to escape the Goths, and find ourselves in the city of Constantine. It was here, during the long night of Gothic domination, that not only taste, but the arts themselves took refuge, while it came, at the same time, be confessed, that we owe their preservation in other parts of Europe to the monastic system. At that city of the East was developed the Byzantine taste—a blended taste, but one blended with great beauty and grace. Its style seems applicable to the climate and situation; it appears to allow more of the semigrotesque, the quaint, the highly ornamental than did either the Greek or Roman—with what advantage, is another matter; it has a certain original charm about it that is highly attractive, and it seems to permit the play of fancy as well as of imagination. The church of St. Sophia is a fine specimen of the architecture of Constantinople, but one too well known to architects to need particular remark. Concerning the Romanesque, I will simply say, that the taste of it seems inferior to the pure Gothic. We may here glance slightly backward at the taste of the Saracens, who, at a period when mental and moral darkness brooded over the Roman, or rather the Greek, empire, were no less famous for their literary and philosophical character than in their history, civil and military. Al Mansour, caliph of Bagdad, was a student of the arts. He was educated by two Christian physicians, and applied himself to astronomy. Haroun al Rashid, his successor, in 786, well known to most of us through the medium of the Arabian Nights—which will give you no inept notion of Arabian taste in literature, and of Arabian imagination,—devoted himself far more to the arts. He was excessively partial to poets, and never travelled unless accompanied by a band of learned men. Al Mamoun brought to perfection what Mansour and Rashid had commenced. Under the auspices of these three model princes, there is no doubt the cities of Bagdad and Damascus arose in considerable beauty, and displayed a *grace and fancy of taste*, such as might be expected from a purified Oriental genius. Damascus is to this day a most elegant and tasteful city: its architecture is not forgotten there: all the dwellings, I believe, of marble, have each its delightful grove watered by the river; and to this taste for nature is ascribed the freedom of the Damascuses from plague, on account of the detachment of their houses and the ventilation obtained by means of their gardens. Their taste for the following of useful arts was also highly developed: the steel

of Damascus will readily occur to you as an illustration. I must here also take leave anticipatively to notice the taste of the Moors of Spain. It is difficult to find a more poetical or more lovely architectural taste than theirs. Their buildings seem an embodiment of imagination; their arched courts, their graceful fountains,—only nearly approached by those of Constantinople,—are otherwise wholly unequalled. The Moors possessed a most extraordinary fertility of design; and I think a study of their taste, as far as practicable, would bestow a somewhat desirable elegance and lightness on the English genius, ever inclined to be too solely material. If we shut out from our contemplation and our acts imagination and fancy, what ignorant hermits would our minds become!—truly, the inhabitants of a blank desert, cheered by no flowers, enlivened by no sweet sounds. As is the mind, so is the work: where you find in a man too great a predilection for ornament, recommend him to the study of the Pyramids; but if you perceive in him a baldness of thought, a want of ideality, advise him to take a pilgrimage to the Alhambra. Many of the curious developments of taste occurred under the protection of the monasteries, such as the art of illuminating manuscripts, painting glass, and the like. Superstition at this period dictated much of the grotesque that has lasted even down to our days, but which still in our climate has its charms; but the whole age that elapsed after the fall of the Roman empire to within a certain period of the Norman era, is very much obscured, and it is to be feared that the prevailing taste was mainly for bloodshed and rapine. When civilisation again arose, and spread across this barren waste, religion, which had before fostered, then entirely assumed the direction of the arts, and engrossed all taste for its sacred purposes.

With the development of the glorious Gothic style you are all acquainted; but it may be observed, that it derives much of its taste from the following of nature; not a small illustration of which is the popular idea that the interior of the Gothic cathedral derives its forms from the forest's avenues. Concerning this notion itself, it may be said that trees are not naturally in the habit of arranging themselves in measured avenues, but grow promiscuously; that such avenues have been so planted by man; and that to arrange columns and arches in a similar manner would but be the carrying out of his own idea. There is a uniformity of taste in Gothic art in each of its styles, the styles succeed each other in due order; there is in it great unity of design, and it derives, from its aspiring character, a sublimity not easily obtained from any combination of horizontal lines. It admits of the highest and most varied imagery; it assimilates itself so much to nature as to admit of almost any natural production, especially of foliage, as an appropriate ornament—though it may be observed that we do not want nature reproduced, but *idealized*—indeed, it would not seem difficult to imagine that certain buildings in this style had grown gradually out of the ground. Finally, the taste of Gothic art is at once chaste, solemn, and sublime, and versatile as to ornament—almost indescribably: this style has also a peculiar power of inspiring awe. It seems also certain that the *vertical* taste, so to say, has, in the north at least, many advantages over the *horizontal*. The chief characteristic of Italian taste, developed in perfection subsequently to the Gothic, is a *wonderful grace* of design, execution, and expression. It is what becomes the climate and the sky under which it grew up and flourished—what you would expect from the warm and florid genius of the people, and what can best be displayed in the use of productions natural to their country. Every architectural student must be well acquainted with the greatest works of the Italians, for it is only by the study of perfection in all branches of his art that he can hope himself to attain to it. It would, therefore, be but a matter of repetition to discourse on the beauties of modern Rome, Venice, Florence, or Milan; we would simply say they are naturally excessively difficult of imitation in an adverse climate, and against an obstreperous sky. Among the European nations, after the Italians, taste appears to have been best

developed in France. In the present age, the taste of Germany is grand and solid; Munich is celebrated for its architectural beauty; Berlin and Vienna boast some magnificent statues. I might refer to Rauch's statue of Frederick the Great, and others by the same artist. Even Russia is taking its stand, and, by the aid of unlimited expenditure, is producing some of the greatest works. It would appear that continental Gothic is inferior in point of *purity* to the English style: it is, without doubt, more immense, but it would be difficult to find abroad the equal of Westminster Abbey, in point of beauty, or of the York Minster in respect of beauty and magnitude combined. But Gothic has long been generally disused on the Continent, while in England it is justly being revived. The classic taste prevails in other lands, and there is little doubt we are far surpassed in this respect by France. But the difference of our sky must not be forgotten—for our climate and sombre heaven, the Gothic is the most fit; and although we should endeavour to excel in all styles, so that we do excel in our own native style we may be content to leave the more successful imitation of Greece to more propitious climes. There is, however, no reason why the classic we do build should not be good—there is no cause why, because the Louvre is hardly to be equalled, we should rejoice in the present National Gallery as the work of our united arts, the symbol of our national proficiency. Taste in England, with respect to architecture, seems to have expired from the time of Elizabeth to that of Charles II., when it was gloriously raised again from the dead, in the Italian, by Wren, whose numerous works are, many of them, the very embodiment of that purity on which it is necessary to insist. I have heard objection made to Wren's detail—with that I have nothing to do, and I do not here use the word *purity* in the sense of *strictness of imitation*, but in its own. To those, however, who complain of his detail, I will answer, however inconsequently, by speaking of his *outline*. We may observe that for Italian to have due effect here, it must, at least in ecclesiastical buildings, be of the very best in design, and not shorn of its appropriate adornment, as in the interior of St. Paul's, where art, in its highest and noblest uses, has been sacrificed to a narrow popular prejudice, and the first sensation felt on entering that majestic edifice is a *chill*—it must, in a word be *Wrenic*, as Wren would have made it had he been unshackled by external ignorance;—it must be the Italian we see in the steeple of Bow. Ideas drawn from a foreign source should not be deprived of all their beauty in the act, just as literary works lose their charm by being translated. If it be said, "but they must by necessity be so deprived," I answer, "that is an excellent reason why we should keep to *our own art*." It may be well to adduce but one instance of our failure. Look at the *rustication* of certain buildings! You will perceive that it has dwindled into a precise, methodical, and miserable manner of lacerating walls, which look as if they had a kind of worm disease—they display (as a friend of mine added with great point to this remark) not rustication, but *vermination*. Where is the idea of method—of a set pattern in rustication? But, look at the Pitti Palace. What is it there? Why, the wall seems built with fragments of a mountain—huge masses piled titanically together—giving a grand, rugged, *truly* rustic aspect, and creating also bold contrasts of light and shade. *That* is rustication. There is no wretched, wriggling pattern in *that*. Our taste is now also too much addicted to medley. There is too great an attempt to marry Caryatides to Gargoyles—too much popping of indescribable steeples on Greek bodies, what may be called elephant-and-castle architecture—against *this* it is necessary to guard.

Having then thus far pursued the history of Taste, I would offer a few concluding remarks on the thing itself. It may be asked, "How is taste to be obtained?" The reply is, *by study*. By continual observation, also, of all works of art, and by consequent comparison and induction in the mind; and we have already said that taste is the result of a discriminative faculty, and that the power of rightly discriminating is necessarily in-



creased by experience. That is a positive truth, and it will at once occur to you as men of judgment, how supremely ridiculous it is to reject precedent in the prosecution of the arts. I am not by any means an advocate for slavish imitation, but I say that it is only by being provided, armed with the knowledge of old, that you can hope to carry on a successful struggle for novelty, where it can be proved that that novelty is desirable. Tell the politician to reject history as his guide; the literary man to burn his classical library; the scientific man to try and start independent of his predecessors. And why must precedent be regarded? Because, I repeat, there are principles common to all art, eternal, immutable, so to speak, and which must ever coexist with human reason, and whose opposites are wholly contrary to that reason. What is it these men think they possess to enable them to start anew, who deride precedent? Of course the power to start anew. If they have the power, can they have derived it from anything but study, but the knowledge of precedent? If they have not the power, it shows that they are either deficient in genius, or are chargeable with culpable idleness. Men are not born architects, more than anything else, to such a degree that their genius needs no support from art. Art is the common mould used by all genius for the casting of its ideas. There is no other way of expressing, of fashioning them; and if genius refuse that, how shall it expect the common hand to grasp these ideas, the common eye to admire them, the common intellect to understand them? Who will say that art has nothing to do with precedent? Who? Does any one cry the first artist (Homer, for instance) had no precedent? I say he had the precedent of nature, and has, in one branch, formed thereon the precedent of art. Horace says that, as art without genius can do nothing, so only can genius without art. It may be very unfortunate for Antiprecedent, that art has been already established, and that he cannot now be the Homer of the world, as it is too late; but it is the fact; and he must therefore condescend to accept what some thirty past centuries have provided for him, and to allow that they have not passed in vain. Let those, then, who sneer at William of Wykeham, and who deride Wren, be first sure that they understand as well the universal principles of art, not to speak now of styles of art, before they attempt novelty; at any rate, such novelty, as must, from the rejection of precedent, consist in hitherto unknown hideousness. The principal novelty to be rationally expected here is, perhaps, a further carrying out of the Vertical style, in some manner suited to the age and its materials; for that style is not, per force, wedded to stone and tiles, and heraldic lions; but we will look for the magical use of iron and glass, and the rest; and for something more varied than some 500 churches, that might be taken for sisters; and for good drawing in the coloured windows and polychromous ornaments. It is certain nothing good will result from working out our present ordinary style of street-architecture, or the nondescript barn-style displayed in many places of worship—buildings highly symbolical, i. e. of total ignorance of art, undefended and indefensible. That moment when architects repel grandeur, beauty, truth of design, and encourage the bald, blank, hopeless abortiveness above alluded to,—when they so encourage idleness and decay study,—when, in fact, they so endeavour to destroy taste, and the very spirit of art itself, it will be a sign that their branch of art, once so great and glorious, is near to its decease, and, in the words of Milton,

"Exhausted, spiritless, afflicted, fallen."

To resume concerning the true search for taste, let simplicity of idea, and in particular utility, be always regarded. A useless work, a too ornate work, a bald work, an incongruous work, all fail in point of taste: a confusion of ideas is to be as much avoided in architecture as in literature. It would be as ridiculous for an architect to put a Gothic Gargoyle on a Grecian edifice, as it is for the poet to talk of his bridled muse being anxious to launch, where she becomes at once a horse and a ship. *Ex uno disce omnes*. The same principles hold good in all, as in this particular. If it be asked who shall be the guide in pursuit of taste,

I answer, Nature. A man who is a lover and student of nature will continually improve his eye, by observing her magnificent combinations of form and colour, and will throng his mind with a host of grand and beautiful images. He will observe her, too, as she is depicted in herself, in her fellows; in their necessities and excesses; in their likes and dislikes; and he will know how to act to a good purpose. As in other things, so in art. And it must not be forgotten, that one great object of art is to educate.

In criticising a work, see if it is nature which is the moving spirit in its creation, and you will have an infallible test! But then how necessary is it for us to improve our own knowledge of, and taste for, nature, for if we are unacquainted with her forms and effects, we shall of course be wholly unable to apply them as tests, and shall in result wholly fail in the pursuit of taste. No man could rightly portray character without observing nature; neither could any build an appropriate edifice, for instance, a dwelling, without regard to the wants and habits of those for whom it was intended. It is from nature that the mind must derive ideas which it shall mould by art, and reproduce for the delight and astonishment of mankind. Go then to her for a guide; learn grandeur from the mountains; vastness from the flood; the force and combination of colour, and grace of form from the forest, fertility from the vale. For in creation is the very perfection and wonder of taste displayed, for there it is divine. The glory of nature is above that of art, as the glory of the lily is above that of the robes of Solomon. Consider the taste that waves before us in the many hues of the autumnal wood, that flows at our feet in the winding stream that encircles it, that arches over our heads in the rainbow, that flutters before us in the dyed wings of the tiger moth. There is that in nature which alone can charm, can elevate; and Art may struggle on in vain, if she would seek to be independent of that wonderful expression of the Divine Mind, which we call nature; but if she will imitate that, if she will make her model of those marvellous works that surround us, there is no pitch of excellence to which she may not attain, no power which she may not express, no grace which she may not be able to display; but, standing aloft in the perfection of her beauty, she will be able to point to Nature, as her mother, so justly, that we might find it difficult to tell the difference between that sublime pair, excepting by the divine expression which must for ever distinguish the work of God from that of man, but which was granted for man's instruction and his love.

H. T. BRAITHWAITE.

#### THE SECRET OF ANCIENT PAINTED GLASS.

At the meeting of the British Association it was remarked, as an unexplained wonder, that cleaning, or rather polishing old painted glass, made it into apparently modern glass, for that it acquired all the thin transparency of colour which characterises the modern manufacture. Of this fact we have a mortifying illustration in the beautiful windows of King's College Chapel, Cambridge, several of which, having been cleaned at great expense, are entirely ruined as far as their ancient character is concerned, for they cannot now be distinguished from modern windows.

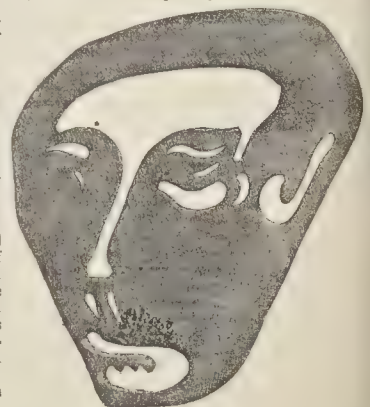
To account for this curious fact it was stated that the external surface of all old glass is rough, and the light passing through the uneven surface is so refracted as to produce the softened effect characteristic of ancient glass, and it was supposed that this roughening was the effect of time and exposure to the weather, which gradually destroyed the surface, as we see in stone and some other materials. When this old glass is polished, the surface is again rendered smooth, and thus the peculiar effect upon the light, which is so much valued, is lost. According to this theory, therefore, the character of ancient glass is an accident, dependent upon time and weather, and I have been informed that in order to imitate it, a quantity of painted glass was lately made at St. Helen's, Lancashire, by being cast upon a sand bed, so that the surface was roughened to

begin with, but I have not heard that the experiment answered, and the plan is not now pursued. If the following observations are correct, it is evident that such a method could not be expected to succeed.

A quantity of old painted glass having been sent to Mr. Forrest, a glass painter of Liverpool, to be cleaned, he found that the outer surface of the whole was covered with a layer of what appeared to be hard dried dust and rain, which was easily removed by a short application of hydrofluoric acid, or by the other means adopted for cleaning old windows. He was struck, however, by observing that every now and then there were perfectly clear places to which the dust had apparently not adhered, and these were sometimes curved lines, sometimes dots or roundish spaces, sometimes small and at other times of considerable size. At first it simply appeared odd that the dirt should have adhered so partially; but at length it struck him that possibly these clear spaces might be intentional, and the dirt not dirt after all, but paint burnt in to the surface of the glass. On further examination he found that this was really the case, and that the clear spaces were lights taken out of semi-opaque back-ground, as is illustrated by the accompanying drawing, which I have made from an ancient head taken from one of the windows in York Minster. It will be observed that there is a deficiency of the dark ground corresponding with the side of the nose, which being turned to the light would have a prominent light upon it. So also with the forehead, the cheek, the prominence of the ear, the ridges between the nose and upper lip, the lip and the chin—in short, wherever a feature would catch the light prominently, there the light passes through the glass unobstructed, but in all other points it goes through a very thin dark ground ere it reaches the colour in the glass, which softens it, and gives the peculiar character of mellowness so much admired in ancient windows. In the drapery and all other parts the same principle is carried out, the prominences being clear on the back.

The dark ground is obtained by burning a very thin layer of fluxed oxide of iron into the back of the glass, and the lights may either be removed after the whole is covered, or they may be left originally as in the drawing. In order to test his theory, Mr. Forrest has made a window upon this principle, which is placed in his warehouse; and, making allowance for its being an early production after his discovery, the effect is so successful as to carry strong conviction with it. He states that he has observed the same thing in all the old glass which has come under his notice; and the few observations I have been able to make in this neighbourhood (Liverpool), where we have scarcely any old windows, have confirmed his remark. It is evident, that if in cleaning an old window the back-ground is mistaken for dirt, as is almost inevitable from its appearance, the removal of it will entirely destroy the peculiar ancient effect.

The observation appears to me to be of so much interest, especially at a time when so



much painted glass is made as in the present day, that I shall be obliged by your insertion of these remarks; and as many of your readers may have opportunities of examining old



painted glass, they will confer a great favour upon myself, and will promote our knowledge of this interesting subject, if they will see whether old glass does or does not confirm this theory.

J. BRKBECK NEVINS, M.D.

#### NOTES IN THE PROVINCES.

A NEW school for boys and girls has been erected at Little Harrowden, Northamptonshire. It is a stone building, and simple in character. It was opened on Thursday last. Mr. Law, architect.—A new aisle has been added to the parish church of Roade, in the county of Northampton, whereby an increase of accommodation to the number of 75 free seats has been obtained. The style is Early English, corresponding with the tower. The works have been executed under the superintendence of the last-named architect, who has also recently restored the endowed school at Burton Latimer, in the same county. It is a building of the Elizabethan period.—St. James's Church, Burton Lazars, near Melton Mowbray, was re-opened on 29th ult. and has been partly rebuilt, restored, and repaired, at a cost of 550l. The chancel has been entirely rebuilt, the structure of the roof altered, and three new windows inserted. The walls of chancel have been enriched by carved stone corbels. The nave roof is new, the old carving imitated. The interior of the church has been cleaned, the walls plastered, arches and pillars restored, including mouldings and ancient carving. The pews have been lowered, the aisles have been newly roofed, and some arches in a dangerous state replaced, the pillars set upright. An unsightly and inconvenient gallery has been removed from west end. The arch of the tower, of peculiar construction, has thus been brought into view. The font has been placed in front of the tower arch. A perfect piscina has been discovered in the wall of the south aisle, which, says our authority, has properly been preserved as a memorial of Romish superstition. The remains of a Norman piscina were found in the chancel, removed from their original position.—Mr. W. H. Gore Langton, of Newton Park, has given 100l. towards the erection of public fountains in Bath.—The Sheffield Gas Company are monopolising the gas-fitting business of the town, under pretence that it is in consequence of the want of skill and ability on the part of the fitters that they do so. This is a pretence of rather a stale description now, for we have repeatedly had to record the monopolisation of the gas-fitting business by gas companies in other towns under the same plausible pretence. True there are incompetent members in every trade; but it is rather a lop-sided balance of justice to exclude the competent tradesmen from their lawful public calling on that account. Moreover, the gas-fitters declare that the company itself was to blame for the introduction of the black sheep at a time when rivalry induced a desire to barter the job to any one in return for the acquisition of a new custom. The company's Act gives them no power to monopolize the gasfitting business. A correspondent of the *Sheffield Times*, in allusion to the price of the gas, says, "Some boast is made of the lowest price being only 3s. 11½d.; but I should like to ask how many customers the company have who get their gas at this price. I find by the company's list, that for the quarter ending December 31 and March 31, their consumption must be 500,000 feet and upwards before they come to this price, which would amount to about 100l. per quarter; and for the quarter ending June 30 and September 30, the consumption must be half the above amount; so that, so far as the great mass of consumers are concerned, the statement is of no value whatever." This is exactly what we anticipated.—A deceptive and unworthy device.—The workmen (nearly 1,100) in the Leeds Railway Foundry are now out on strike, and have had frequent public meetings on Hunslet Moor, with military bands, &c. The hands turned out on a question arising out of the discharge of the smiths' foreman, and from general dissatisfaction with the manager.—The consecration of St. Ninian's, the first cathedral in Scotland during the last 300 years, took place on Wednesday week; the Bishop of Brechin officiating for the Bishop of St. Andrew's. At

present only the choir, transepts, and one bay of the nave are complete. The building has been erected from the designs of Mr. Butterfield, and is in the Middle Pointed style.—With reference to our recent notice of the church in George-street, Oxford, we are requested to say that the sum of 4,450l., stated by an Oxford paper as the cost of the building, included the cost of site and conveyance, repair fund, &c.; so that our own statement was correct.

#### STRIKE OF ENGINE-DRIVERS.

WE very much regret to find that the engine-drivers on the Northern division of the London and North-Western Railway have suddenly announced a determination to strike in a body at this busy season, in order to compel the directors to alter their arrangements for substituting quarterly for fortnightly engagements in taking on new hands. It is sad to find that experience of the evil results to all parties, but more especially to the strikers themselves, from the system of strikes, is of no avail. Whatever be the immediate result, which itself is but too likely to prove ruinous to many poor families, without a doubt the bonds of servitude will be afterwards only drawn the tighter over its unruly members. Do not the men see that the inevitable result of all these strikes will be that it will encourage railway directors to initiate hundreds of new hands, even at some temporary expense to themselves, in order that the supply of engine-drivers may exceed, and not as now fall short of, the demand? And who will suffer then? not only the present body, who, we think, are extremely well off, but the whole of the increased class together, many of whom will ever be thrust out of employment, and prevented from regaining it, by the competition which undue numbers will induce. Let the present body of drivers be advised. For their own sakes, they ought at once to retrace their erroneous steps and make honourable peace with their employers.

#### MAHOGANY.

A CORRESPONDENT has sent us some particulars of three fine logs of mahogany recently sold by auction in Liverpool. They were grown in St. Domingo. One of them was purchased for France, and sent, according to the French customs regulations, to Rotterdam, and thence to France. Another was purchased at the same time in London, with a large parcel, forwarded by railway to Liverpool, shipped with a full cargo of mahogany to Mogador, and thence to Havre. From an error in the formalities of the papers, the cargo was not admitted in France, and had to be re-shipped to New-York and again imported from the United States to Havre, where the log was purchased by a Paris timber-merchant, and cut into planks. These three logs, cut into planks, were selected for the embellishment of Versailles, and an enormous price paid for them, but the French Revolution prevented their delivery, and they were bought on speculation for the English market.

It is a curious fact, that although mahogany seems sometimes to be laid aside for other fashionable woods, such as rose wood, tulip wood, amboyna wood, &c., it keeps up its superiority.

The history of the mahogany tree is well known. Its botanical name is *Swietenia*, in honour of Baron von Sweten, author of several botanical works. We will not enumerate here the different species of mahogany.

Our correspondent says he wants "some explanation of the cause of the different shades existing in mahogany and other woods. I have studied the vegetable anatomy of different authors, and find that all they say upon the subject treats on the sap, small spiral vessels, common and modular texture, punctuated and bundles of spirals, &c., which does not appear sufficient for our purpose. They explain the growth of the wood by the annual layers from the centre and the bark of the tree, but give very few details concerning the grain of the wood, and principally of mahogany, which differs so much in texture and in the appearance of the different shades, technically termed *roe*, *broken roe*, *bold roe*, *mottle*, *faint mottle*, *dapple*, &c. These denominations are merely technical expressions formed

by dealers and artisans, and not scientific classifications; and the learned men, who have taken so much trouble in forming and modelling the botanical system, and who have devoted so much time to the study of the leaves, branches, flowers, fruit, seeds, bark, and the form of the tree, have bestowed very little attention upon the body of the tree, viz., the wood, its grain, and use, hardness, and chemical qualities.

"I would likewise be glad to know whether the little knots that we find in Bird's-eye maple, and of a larger form in knotted mahogany (plum), can be considered as disease of the tree, or as arising from some other cause? Whether the small cross shades that produce the mottle, are, as we presume, the effect of the slow growth of a tree exposed to the currents of air in higher regions or not? Whether the long *roe* dark and lighter shadows are produced by irregular windings of irregular bundles of spiral fibres, or from any other reason?"

#### SALFORD PEEL TESTIMONIAL COMPETITION.

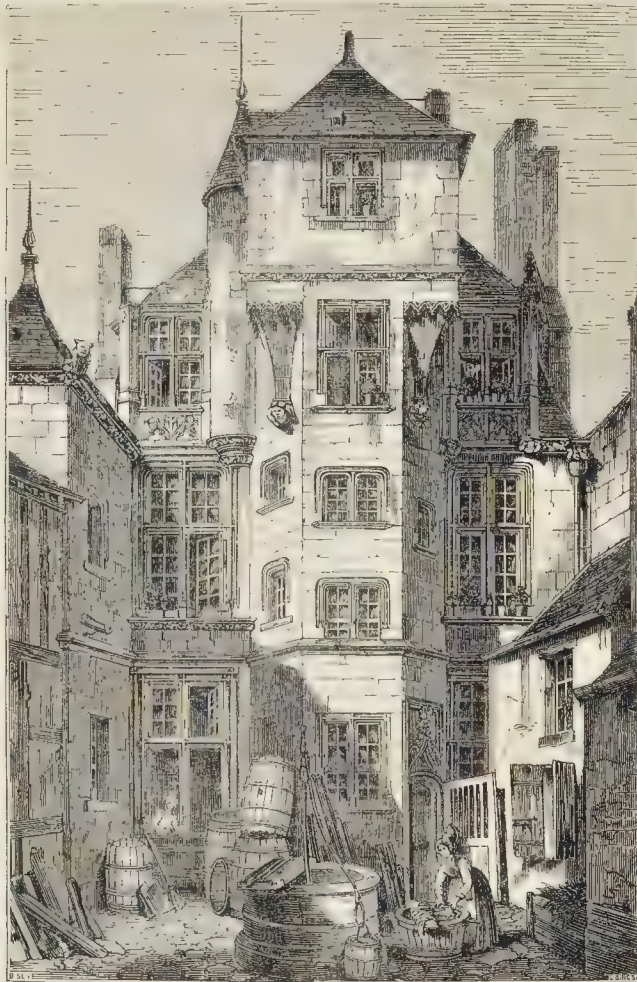
IN examining the twenty-four models for a statue, which have been submitted, there does not appear much originality of composition, or even a departure from the conventional attitude which the few public statues in England commonly display; yet some of these designs in particular have been very successful in impressing the idea of an educated statesman in a habit characterising the manners of the time in which he lived, together with a desire to please the expressed views of the business-like Manchester mind, and which, if perpetuated in bronze or marble, might carry down to an admiring posterity the eulogy of every variety of coat from the "dress" to the "Nicolls' paillet" and the "railway wrapper."

The statue with the motto of "a Saxon," displays dignity, by the artistic management of the cloak. The statue marked "Truth," is full of grace and beauty. The attitude is remarkable for great ease, while the whole composition is well balanced throughout. An imposing design of a triangular character reminds one greatly of a presentation-piece, to be done in silver; at the truncated corners of the pedestal there are three allegorical figures, representing Legislation, Commerce, and Genius, supporting a pedestal for the statue of the late Right Hon. Baronet. It is stated in the appended description, that the statue is to be of bronze, 9 feet high, and the three figures and pedestals are to be of stone, of a size proportionate to the principal figure, as in the model, by which the total height from the steps of the base to crown of the statue will be nearly 27 feet. Whether all these matters can be accomplished for the sum offered by the committee is a question which we have some doubt of affirming to be possible, even in the present days of patent brick and plaster. The model with the motto of "His fame deserves recording," is somewhat pretty and pleasing, and better adapted to the purpose. The two female figures at the base of the pedestal are good, the one representing History is writing upon the pedestal the now well-known passage in the last memorable speech of the late statesman. There is not much worthy of remark in the models for columns, altars, and obelisks; all are copies and adaptations from existing instances.

Amongst the sixty-eight designs upon paper, we do not discover the most ordinary indications of genius or originality: it is evident that there is great need of schools of design to educate architects into a knowledge of the elements of beauty and design, if we look upon the specimens here exhibited as any criterion of their taste: fifteen of the architectural structures are copied from the Queen Eleanor crosses; but they exhibit specimens of the Early English, Perpendicular, and Decorated styles, and seem quite unsuitable to the object of the Peel monument. Eighteen are designs for columns and obelisks, and twenty-one for por-ticoes, temples, and other buildings, the erection of any one of which would require double the amount of the money in the hands of the committee. The remaining designs are for statues, bell-turrets, tombs, and a gateway somewhat after the pattern of the marble arch in Hyde Park. There is one design which deserves exemption from this category of common things, bearing the motto "Let every one strive to deserve a monument." This is an amplification of the sign lamp engraved in a recent number of *THE BUILDER*. The base is enlarged and raised to the height of six feet, and from each angle there arises a decorated iron-work pillar; these four pillars support a floriated ironwork canopy; the roof is composed of coloured porcelain tiles; and in the open work in the front similar tiles are introduced, emblazoned with heraldic quartering. In the centre of the stone pedestal, and under the canopy, is a statue eight feet high.



HOUSE AT MOULINS, FRANCE.  
(15th CENTURY.)



ANCIENT HOUSE AT MOULINS,  
FRANCE.

THE annexed engraving represents a house erected in the fifteenth or at the beginning of the sixteenth century, in *Moulins*, a town belonging to the department of the *Bourbonnais*. It struck us as affording a good instance of the picturesque effects obtained by the old builders, not for effect's sake merely, but by making the elevation subservient to convenience and use. The tower contains the staircase: if it had been brought out square, it would have obstructed the light of the adjoining rooms, and it was therefore made pentagonal. Above, however, this objection does not exist; and in order to get a room at the top, the walls are made square, carried at the angles on pendentives; and to get stairs up to the room, a small turret is thrown out in the angle. Students should mark these matters, and give their thoughts free range when designing.

**RAILWAY RATING.**—We understand that a meeting of the representatives of some of our most influential railway companies was held on Thursday, in London, for the purpose of determining the best course to be adopted for remedying the abuses of the present system of rating railways to the relief of the poor.

#### BITS FROM BRISTOL.

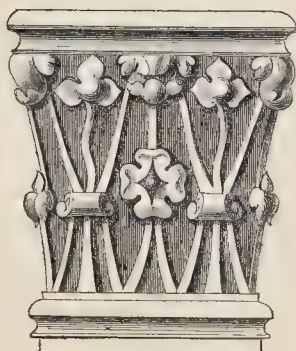
At the annual meeting of the "West of England Architectural Society," held recently in Bristol, no report was read, and the evening was chiefly occupied in a discussion on the effect of competition on architects, and their remuneration. The regulations of the Bristol Architectural Institution were read, in which it was suggested that competition was injurious.\* Mr. Young said, he thought the time had hardly arrived when competition could be dispensed with, and regretted that the public interest in architecture was so little, while the sister arts of sculpture and painting obtained their full share of attention. He thought something ought to be devised to arouse the public, and infuse a correct taste and appreciation with respect to architecture. The Rev. E. J. Carter, secretary to the association, had always set his face against competition on several grounds. It was impossible that a committee of gentlemen, taken according to their subscription, could judge merely from drawings of the suitability of any particular building. At all events, when drawings of a building were made, they ought to be paid for. At present architects were very badly remun-

nerated; 51. per cent. was the amount of their commission, and as there were comparatively few large buildings in the country, he thought 101. per cent. was not a farthing too much. Mr. Frigg was gratified at the very liberal view taken by Mr. Carter, but thought that he would not meet with much encouragement. Five pounds per cent. was perhaps ample where the building cost 60,000*l.* or 70,000*l.*; but it certainly ought to be increased as the cost of construction diminished.—Or say, where the building cost 6,000*l.* or 7,000*l.* Opponents of extra pay to architects, which we of course are not, might have quoted an anecdote of the celebrated Duchess of Marlborough, which has been recently set going by Mr. Jesse. This "strong-minded woman" was once squabbling with an architect (Vanbrugh?) whom she employed in the works at Blenheim. The architect insisted that a claim which he had preferred was not an exorbitant one. "Why," said the duchess, "Sir Christopher Wren was content to be dragged up to the top of St. Paul's three times a-week, in a basket, and at a great hazard, for 200*l.* a-year."—The report of the Society (above-mentioned) for 1849 has been published, together with an interesting illustrated "Paper on Bells," by the Rev. H. T. Ellacombe. Mr. Ellacombe's remarks on

\* The Bristol Architectural Institution (the professional body) appear to conduct their business very quietly; their meetings go off without any report—in the local papers.



## CARVED CAPITALS FROM PARIS.



the hanging of bells give a useful caution. He says, justly, "If, in the course of years, as will be the case, the frame should vibrate or get rickety, it should not be made steady by putting wedges between the beam-ends and the walls, as is commonly done by inexperienced workmen, but it may be easily stiffened by driving hard oak or iron wedges in at the backs of the tenons of the *braces*, in the mortices in the *cill* pieces. The construction of the timbers or cage of St. Paul's, London, may be taken as a good example of hanging heavy bells in a belfrey. The timbers should always be laid on wooden plates, the whole resting either on stone corbels or on a set-off formed in the wall. It is not the downward pressure from the weight of metal, but the lateral pressure or vibration caused by the motion of the bells, which does the mischief, especially if any of the timbers are let into the walls or touch them laterally. To avoid this, a well-constructed cage is trussed and braced diagonally with most substantial timbers, the weight of the whole, if properly rested on corbels or set-offs, keeps it steady. The higher the bells are placed in the tower, the more does the vibration caused by ringing them affect the masonry."—The Bristol High Cross is standing still at present, the steps alone being completed, and the hoarding removed. But it is understood that the carving is to be proceeded with during the winter months, ready to begin setting in the spring. A joking report, that a statue of the present mayor was to surmount the monument instead of the cross has called forth a denial from the honorary secretary to the committee for carrying out the project. —We are glad to hear that a subscription is being made for a testimonial to Mr. Haberfield, now mayor for the sixth time. Without doubt a considerable sum will be

raised, and we will venture to suggest a mode of applying it. Mr. Haberfield does not want plate, and a picture is ephemeral. Now, Mr. Haberfield feels great interest in the restoration of St. Mary Redcliffe Church; and what we suggest is, that the committee who are managing the testimonial fund should take some distinct portion of that building, and make that a monument to his memory for all time. The tower and spire would perhaps be too much for them, but let them take the south porch, thereafter to be called the "Haberfield Porch," and the worthy mayor would go down to posterity side by side with the noble individual, whoever he may be (and no one in Bristol seems to have the slightest knowledge of this fact), who, under the signature of "*Nil Desperandum*," is munificently providing funds for the restoration of the north porch, one of the finest specimens of the Decorated style in the world.—The Canynge Society have determined on next commencing the restoration of the south transept of the church, because of its containing the tomb of the founder. Drawings and specifications are to be prepared forthwith.—The approaches and thoroughfares of Bristol much require improvement. A general plan should be forthwith laid down by the corporation, even if it were carried out but gradually. There is a great future before Bristol: let those who have the management of affairs there properly prepare for it.

## STONE CAPITALS FROM PARIS.

THE Parisians have long been distinguished for their imaginative faculties in design, and their contempt of established rules, whether architectural or decorative, when opposed to elegance and novelty. The modern domestic architecture of the French metropolis, to

which upon other occasions we have alluded, affords ample illustration of this facility of invention on the part of our continental neighbours. The stone fronts of most of the new houses in Paris are more or less elaborately enriched with sculpture in relief (a matter of surprise to those who are not aware of the ease with which the stone of the locality is worked, and the cheapness of both mechanical and artistic labour), composed of arabesque ornaments, chiefly of the "Renaissance" style, with the occasional introduction of figures. These house-fronts, however, are by no means imitations of old French or Italian erections, but are simply adaptations of the style of the 16th century to the requirements of the 19th. Even the shop-fronts and carriage gateways of Paris present many features of graceful and original treatment, particularly exemplified in the capitals of columns or pilasters supporting doorways or windows. Of these we select a few for illustration. Others, which abound in the more recently formed streets, afford an almost unbounded diversity of composition, and much material for the student's note-book.

THE COLLEGIATE INSTITUTION, LIVERPOOL.—Mr. H. C. Pidgeon, Secretary of the Liverpool Academy, last week gave two lectures here on the Principles of the Fine Arts, in continuation of Mr. Bishop's course on Perspective. After pointing out the general importance of the fine arts as a branch of education, and explaining the rise and progress of art, Mr. Pidgeon proceeded to give the history of a picture in its various stages, beginning with the choice of the subject, which he described as a most important point, as on it greatly depend the chances of the finished work.



## THE SEWER-ACCIDENT IN SCOTLAND YARD.

METROPOLITAN COMMISSION OF SEWERS.

At the adjourned meeting of the commission on Friday last, as but too frequently happens, a *quorum* could not be found, and a court, hence, could not be formed. It is really time some change were made; if there is business to be done, the delay is to be deplored; if there be no business to neglect, the meeting is a farce. Notwithstanding the want of a legal court, Sir H. De la Beche, it is consoling to think, assured the reporters extra-officially present, and through them the public, that although the process of disemboguing the sewage into the Thames be ostensibly and really on the increase at present, there is not only an unanimous determination, but a determinate plan, on the part of the commission, to rid the river altogether of sewage on the north side as well as the south, within the limits of metropolitan influence,—at least to a distance equal to Gallion's Reach. Mr. Peto also addressed those present in hopeful words. The Victoria sewer itself, he stated, is part and portion of the new system no less than of the old, with the exception of the issue, in the mean time, at the lowest level at Scotland-yard into the Thames. The whole scheme formed a well-considered well-digested plan, as would ultimately appear. As to the recent accident, Mr. Laves said, that the commissioners had thought it advisable to await the result of the coroner's inquest, before calling on their engineer to read his report, for which, by the way, the inquest was adjourned.

At the adjourned inquest on Monday last Mr. Forster was examined, and, in accordance with the statement already made in our columns, attributed the whole mischief to the contractors. The jury returned the following verdict:—"Accidental death by drowning, and the jury cannot separate without expressing their unanimous opinion that great negligence is attributable to the contractors, Messrs. Humphreys and Thirst, and to their foremen, Wheeler and Parrett, in not consulting the engineer of the commission before undertaking the work which led to the accident."

We have some curious statements on the subject, but as they are not sufficiently authenticated we cannot print them.

## LIVERPOOL EXHIBITION AND PICTURE SALES.

We are happy to say the sales of pictures are going on very favourably, and that the total amount exceeds the sum we mentioned in our last, having reached upwards of 2,300*l*. The following pictures have been sold since the report in *THE BUILDER* of September 28th:—

"Sunshine and Shower, in the Vale of the Conway," C. Barber; "The Clyde, at Bonnington," J. W. Oakes; "Eton College," H. Pilleau; "Kirchconchon, Isle of Man," Bury Callow; "Nottingham," H. Dawson; "The Lesson," J. A. Puller; "On the Rhine," Mary Bright; "Nell and her Grandfather," W. Romer; "A Sussex Woodland Road," J. S. Raven; "The Broken Chord," W. Fisher; "The First Lesson," John Macdonald; "A Grey Day on the Greta," S. R. Percy; "View at Hampstead," Mrs. W. Oliver; "Aqueduct crossing the Aire," J. Clayton Bentley; "Shipwreck, Isle of Man," E. Duncan; "Flowers," Mrs. W. Duffield; "View of Broadwater, Sussex," Copley Fielding; "Grouse," W. Davis; "Woodman, Sunset," W. Havell; "West Mill, Ware, Herts," Mrs. C. Jayne; "Byland Abbey," Copley Fielding; "Lake Scene," A. Hunt; "Cwm Eigan Moor," J. W. Oakes; "Shrewsbury," W. G. Herdman; "Reflection," J. C. Rowland; "Cockley Beck," Mrs. Lindsey Aspland; "Pass of the Valley of the Biers," H. C. Selons; "Scene in the Valley of Montjore," F. H. Henshaw; "Jessie and Colin," Miss S. Setchell; "Port of Como," W. Perrott; "A Kentish Farm," G. A. Williams; "Il Reposo," A. J. Woolmer; "Brig entering Port," John Callow; "Coast of Yorkshire," A. Clint; "The Organ Boy," E. C. Williams; "Outskirts of an English Village," J. Clayton Bentley; "Fort de L'Ecluse, Valley of the Rhone," F. H. Henshaw; "The River Dulyer," J. W. Oakes; "Mountain Stream," A. Vickers; "Returning from the Moors," J. M. Richardson; "Mountain Stream," H. Jutsum; "June," G. Dodgson; "Water Tower, Chester," G. W. Herdman; "Cottages near Cuckfield," Copley Fielding; "Evening, near Bray," G. A. Williams; "An Arcadian Child," Clement Burlinson.

The Exhibition is now open to the industrious classes at a nearly nominal rate, and has, in the course of the last fortnight, been visited by nearly five thousand persons, exclusive of nearly the same number of children from the various schools of the town, who have been admitted gratuitously to see the collection.

## A COMMEMORATIVE COLUMN FOR 1851.

The author of the "Handbook of London," after describing the best way of entering London in the olden time to have been by its noble river, adds, "Now it is somewhat different; Englishmen and foreigners enter London by the five main thresholds of the place;" he then enumerates the railroad stations, and convincingly demonstrates that London-bridge is the "only station affording a favourable view of London at first sight. The others," he adds, "are very bad."

On reading this notice, I turned to a map of London to aid my memory in comparing the view of London from the Monument with another view, that would be commanded by a tower of about half the height of the Monument, erected near the station on the Southwark side of London-bridge, and noting that it would command the river front of several public buildings on the north bank of the Thames, a view the spectator from the Monument cannot command, and that the loss to sight of the south bank would be a gain, I venture through your columns to suggest to the Southwark-station or other authorities, the erection of a pillar in the locality pointed out, as commemorative of the events of 1851, about to bring the nations of the world into amicable contact in London; and to which none will instrumentally contribute facilities more largely than the South-Eastern Railway Company.

From the gallery of a pillar so erected the spectator would find at his feet, the station, and its diverging lines, the hospitals, St. Saviour's Church, and London Bridge, and beyond these the façades of buildings too numerous to mention, such as no site in London, except on the Southwark side, can command. In confirmation of this position I simply refer to the map of London. As an investment it would doubtless be remunerative: and were it otherwise, a national monument, combining ornament and beauty with public gratification and utility, would be as legitimate, I presume, on the Southwark as on the city or Westminster side of the Thames.

The borough of Southwark has, I believe, within its limits, no public monument whatever. It is high time this reproach should be rolled away.

With a statue of Queen Victoria, our ocean Queen, on its southern approach, corresponding with that of our ocean king, William, on its northern approach, monuments to correspond in the vicinity of both statues, London Bridge (the first bridge over the Thames approached from the sea) would stand forth in its full and fair proportions, attesting the fulfilment of a poetical prophecy of Alexander Pope, in his "Windsor Forest," written in his minority, in the reign of Queen Anne, nearly 150 years ago:

"The poet's eye, in a fine phrenzy rolling," saw in the dim perspective of time, a future queen, and in her reign a new Whitehall, new temples, and glittering spires arise, and new villas on Thames's

Side,

Project long shadows o'er the crystal tide."

The context as to the homage of foreign potentates and powers is curious and highly interesting, for which I refer to the poem itself. But as more immediately portraying the contemplated events of 1850, 1851, allow me to add a few lines in which Old Father Thames apostrophises Anne, Queen Regnant, who as such immediately preceded her present Majesty:—

"Hail, sacred Peace, hail long expected days,  
That Thames's glory to the stars shall raise!  
Thou Tyber's streams immortal Rome behold,  
Thou foaming Hecuba swells with tides of gold,  
From heav'n itself though sevenfold Nilus flows,  
And harvests on a hundred realms bestows;  
These now no more shall be the muse's themes,  
Lost in my fame as in the sea their streams.  
Let Volga's banks with iron squadrons shine,  
And groves of lances glitter on the Rhine."

No more my sons shall dye with British blood  
Red Iber's sands, or Jacta's foaming flood;  
Safe on my shore each unmolested swain  
Shall tend the flocks, or reap the bearded grain.

The time shall come, when free as seas or wind,  
Unbounded Thames shall flow for all mankind,  
Whole nations enter with each swelling tide,  
And seas but join the regions they divide;  
Earth's distant ends our glory shall behold,  
And the new world launch forth to seek the old.  
Then ships of uncouth form shall stem the tide,  
And feathered people crowd my wealthy side;  
And naked youths and painted chiefs admire,  
Our speech, our colour, and our strange attire!  
Oh stretch thy reign, fair Peace! from shore to shore,  
Till conquest cease, and slavery be no more."

With slavery abolished, trade free, navigation laws repealed, and the Exposition of 1851 realised, what more fitting than a columnar memorial, erected in the heart of London, near the point to which the access of sea-going steamers and vessels, and the continental railroad line are limited, and having the ten lines last quoted as above from Pope inscribed on its pedestal? G. HOWDEN.

## Books.

*The Fine Arts Almanack, or Artist's Remembrancer for 1851.* Edited by R. W. Buss. London: Rowney and Co.

We mentioned Mr. Buss's almanack last year, on its first appearance, with great commendation, and are glad to find he has been encouraged to repeat the work. It contains a large amount of information not to be found elsewhere, and the notes of the month are written in so pleasant a manner that there is no beginning without ending them. We have, nevertheless, a quarrel with the editor for the singular deficiencies in his list of "Sculptors, Architects, and Engravers." The architects are left out altogether; Bunning, Donaldson, Kendall, Tite, &c. &c. &c. we looked for in vain. In the next edition of his otherwise excellent publication, Mr. Buss must amend this.

*Turning and Mechanical Manipulation; intended as a work of general reference and practical instruction on the Lathe, and the various Mechanical pursuits followed by Amateurs.* By the late CHARLES HOLTZAPFEL. Vol. III. Holtzappel and Co., Charing-cross and Long-acre, 1850.

This work is one which will be hailed by every amateur in mechanical manipulation, by every mechanical genius not himself practically initiated by apprenticeship into all the mysteries of his craft, and even in many instances by those who are as a guide, philosopher, and friend. To many, we know, who already possess the late Mr. Holtzappel's previous volumes on "Mechanical Manipulation," it will prove a pleasure and a profit to know that his comprehensive design is now further matured by at least one essential step. In mechanics the name of Holtzappel is in itself a host. We have every confidence in recommending the whole work under notice as a most substantially useful one to those who may not yet have benefited by its mass of practical knowledge, and may still be floundering in despairing endeavours to master some particular branch of mechanical manipulation. Here the amateur mechanical engineer, turner, joiner, cabinet maker, lapidary, jeweller, engraver, sculptor, glass-blower, marble-cutter, entomologist, astronomer, may be certain that he will find something or other that will vastly abbreviate and mature his practical mechanical labours.

We had intended to have selected, as a specimen of its useful details, some account of marble working and sculpture, glass-plate polishing, &c., but these we must reserve to another opportunity. In the meantime we may state that the design of the late mechanician, which was meant to extend to no less than eight distinct volumes, is being carried out by the practical successors to his business, Messrs. Holtzappel and Co. with the assistance of the mass of notes, and more elaborated divisions and details ready to their hands. The limits, however, will be restricted to six volumes, of which three are still to appear. The first volume treated of mate-

\* Lord Carlisle has forestalled our correspondent in the application of these lines, and quoted them at the Westminster meeting.—Ed.



rials and modes of working; the second, of principles of construction, action, and application, cutting tools, machines derived from hand tools, &c. The third volume, now issued, comprises, besides its other varied details, a useful descriptive catalogue of the apparatus, materials, and processes, for grinding and polishing, commonly employed in the mechanical arts; much valuable instruction as to the composition and preparation of varnishes, &c.; and an index to the three volumes now published. The fourth and fifth volumes will relate to turning, simple, complex, and ornamental; and the sixth to amateur mechanical engineering.

*Notices of Sepulchral Monuments in English Churches, from the Norman Conquest to the Nineteenth Century.* By WM. HASTINGS KELK, A.B. London: Chas. Cox, 1850.

MR. KELK is one of the honorary secretaries of the Buckingham Architectural and Archaeological Society, and the pamphlet named above is a paper read by him at their third annual meeting, illustrated by numerous woodcuts. They who are not disposed or able to obtain the larger works published on these memorials of past time, may gain a good general knowledge of the subject from the notices before us, brief as they are.

We are glad to find the reverend gentleman pronouncing strongly against burial in churches. As to the admission of monuments into churches, he says,—

"First let us notice what should be avoided:—  
1. Monuments which, from size or position, may interfere with the due celebration of Divine service.

2. Monuments differing in form and character from the general principles of ecclesiastical architecture.

3. All emblems, decorations, and inscriptions which necessarily would remind the beholder of Paganism or of Popery.

4. Emblems of mere mortality; such as skulls, cross-bones, and emaciated figures, as being suggestive rather of annihilation than of immortality.

Let us now notice what kinds of memorial are adapted for admission into churches:—

1. Stained-glass windows. This kind of memorial is not only ornamental to the church, but affords the happiest facilities for scriptural illustration and emblematic commemoration.

2. Stone slabs forming part of the pavement. The memorial and decorative devices may be either engraved on the slab, or on metal plates sunk into it.

3. Altar-tombs and sculptured effigies are well adapted for cathedral and large churches. The monument of Edward the Black Prince is an admirable model.

4. A font, or other durable requisite, constitutes a suitable memorial in a church. The memorial inscription may be incised in the base or pedestal.

5. Mural tablets should be constructed on the principles of Gothic architecture, and harmonise with the prevailing style of the church. They should, if possible, be recessed into the wall, and resemble the piscina or sedilia, which, in the hands of a skilful architect, afford excellent models, from the simplest to the most elaborate design."

The modern example which the writer gives and praises is of a very common type.

### Miscellaneous.

**RECORDS OF ANCIENT AMERICAN MINING.**—At Lake Superior, whence such enormous masses of metallic copper have been got, a curious record of ancient mining was lately found. It consists of a stick of oak timber, about 10 feet long, with short cut limbs or stumps, two feet apart, and at nearly right angles with each other, and on the same plane. This obvious original of a mining ladder was found standing erect in an ancient pit or shaft, 27 feet below the surface, with rocks and earth accumulated in and about it, and great trees growing over and out of it. The substance of the oak was almost disintegrated till dried in the sun. Several copper chisels and wedges were also found, leaving little doubt, we should think, of the fact, that the ancient secret of hardening copper, so as to render it, not a mere inferior substitute, but a superior instrument to the more perishable iron, must have been known to these ancient American copper miners,—"unless, indeed, copper cuts copper, as 'diamond cuts diamond.'"

**THE DEVONSHIRE DORADO.**—The strata abound in valuable lodes of tin ore. The unstratified formation is equally and universally rich in inexhaustible tracts of the finest granite, of the kind of which is composed the Nelson Column, in Trafalgar-square, in London. Within seven miles of Plymouth is to be found an inexhaustible supply of the very finest fire-brick earth, superior in quality even to the far-famed brick earth of Stourbridge. A bed, nine hundred acres in extent, and of an ascertained depth of a hundred and twenty feet, has been discovered, which, on being analyzed, is found to produce a virtually inexhaustible supply of the finest porcelain clay, perhaps, to be found in the world. It has been compared by Briognati, the celebrated manufacturer of Sèvres, Bethier, and others, with that of St. Irieux, in France, and St. Austell, in Cornwall, and pronounced superior to either. Then, as to the means of manufacture: at the distance of only thirty miles the Bovey Tracey lignite quarries supply an article eminently adapted for baking earthenware of every description.—*Household Words.* [We have long understood that some of the decomposed granite washed down from the Dartmoor tors constituted a porcelain clay that vied with the finest ever used. In China such clay is prepared by like decomposition of its stony materials, collected and imbedded for generations as an heirloom in families, for the purpose of manufacturing porcelain. We have not yet reached that stage of provident civilization.]

**RECENT AMERICAN PATENTS.**—Mr. S. P. Ruggles, of Boston, for a machine for cutting sheet metal, claims a mode of causing the cutting periphery of the rotary knife to travel around faster than the knife moves horizontally, and thereby to make said knife cut with a drawing stroke; also a mode of cutting either circular or curved work, as described, and of any diameter or dimensions capable of being produced by the machine, of whatever size it may be made.—Mr. H. Knowles, of Washington, for an improvement in saws, claims the forward projection of the cutting edge of the teeth, with an outward inclination from plane or curved surfaces (separated by notches) a distance equal to the thickness or chip that each tooth is intended to remove.—Mr. J. Van Brocklin, of Middleport, Niagara County, New York, for improvements in machines for heading bolts, rivets, &c. claims the attachment, in the lower part of the box or holder, of a flaring or bell-mouthed cavity, which embraces the tapered ends of the dies when the box is down or in a vertical position, and clamps them firmly together, while the cavity acts as a guide and prevents the metal being forced out between the ends of the dies and bottom of the cavity.

**CROSSING THOROUGHFARES.**—The terribly crowded condition of our great thoroughfares renders the crossing of them at all times a difficult and slow business, and sometimes even a dangerous performance. Permit me, through your medium, to suggest the expediency of throwing light cast-iron bridges over the most frequented crossings. The bridges might be divided longitudinally by a light fence or railing, to enable parties to pass to and fro; and access to them might easily be gained by a double spiral staircase. By this means our thronged streets might be crossed in safety, and without exposure to the unctuous mud, while those who preferred risking their necks by threading the carriages, &c., to losing the few moments of additional time required for ascending and crossing the bridges, would still be at perfect liberty to do so.

**Royal Society.** C. R. WELD.  
\* \* \* The suggestion has already been made in our journal; but we willingly strengthen it with Mr. Weld's opinion.

**CLEANSING THE SERPENTINE.**—Seeing the many and just complaints relative to the present state of the Serpentine, and also the plan proposed in your pages for its cleansing, permit me to suggest the following, as a means when cleaned (which is an easy matter) of keeping the bottom free from similar accumulations. The ingress of water I place in lowest possible position, and distribute such supply as evenly as I can across its entire bottom. The egress is placed at lowest possible point also, and similarly distributed: thus a constant flow is obtained in the required direction,—viz. the bottom, and the sediment now daily

accumulating carried off by the so induced current. By the present arrangement the water is admitted, and then allowed to settle; if there happen to be an overflow, it escapes over the top near the waterfall, having first safely lodged its deposit in the depths of the reservoir. Such method have I adopted with mill-ponds, reservoirs, &c., that used to be filled up almost after every heavy rain, but wherever I adopted bottom currents, aided by my self-acting sluice-gate, I have met with decided success.—HARCOURT THOMPSON.

**THE IVORY TRADE.**—Few persons have an idea of the value or extent of the importations of ivory into Southampton, principally from Alexandria, by the Peninsular and Oriental Company's steamers. The demand has greatly increased during the last few years; and although the supply has been considerably augmented, it is not equal to the demand. The tusks and pieces (nearly 3,000 in all) brought here by the *Ripon* on her last voyage were on Tuesday last sold by public auction in London, and readily realized from 18s. to 25s. per pound, the whole producing nearly 25,000*l.*, the greater portion of which was paid down immediately, a discount of 2½ per cent. being allowed for cash, but no payment is extended beyond one month from the day of sale.—*Hampshire Independent.*

**PROPOSED IMPROVEMENT AT LONDON-BRIDGE.**—In October last a reference was made by the Court of Common Council to the Navigation Committee in relation to the danger of crossing at the south end of London-bridge. Mr. Dawson, a member of the Common Council, proposed a plan by which such danger would be entirely obviated. We have already alluded to it, but it seems to deserve further mention. The object is to make an arched foot thoroughfare beneath the road from the first landing down the steps on the east side, to the corresponding landing on the west side. By this means a safe and easy transit would be afforded to the great number of passengers from the railway termini, who require to go to the western parts of the metropolis by steam-boats from the pier on the west side of the bridge, as well as to the greater number of persons wishing merely to cross from one side of the bridge to the other, without the risk of accidents, at present unavoidable, on account of the roadway being usually thronged with vehicles. The possibility of interfering with the stability of the bridge would first have to be considered; but this being settled, it is hoped that the corporation of London will not allow expense to be an object when so great a convenience can be afforded to the public at an outlay comparatively trifling.

**THE CENTRAL AMERICAN CANAL PROJECT.**—A discussion on this subject by the Royal Geographical Society has of late been exciting a good deal of interest. Some of the speakers incidentally referred to the volcanic nature of the district, to which attention was drawn by our correspondent, Captain Nelson, of the Royal Engineers, in his precautionary article in our columns of 27th July last. That article, by the way, has been reprinted by the *Nassau Guardian* of 25th September last, together with a long appendix of quoted opinions, by Mr. Stephens and other authorities, confirming the view of our correspondent, and a map of the district, the whole communication extending to almost one-half of the impression of the paper containing it.

AMONGST the many improvements suggested in this age of invention, are vulcanised India rubber covers for the iron tyres of carriage wheels. [The advantages are stated to be an increase of the durability, and lessening the noise when moving over hard surfaces, and also lessening the draught, the wheels being in fact springs, and hence, by their elasticity, giving a lighter draught than those with iron tyres. One set of wheels so prepared has run over 4,000 miles with so little appearance of being worn out, that it is calculated that the same wheels will yet run over 3,000 or 4,000 miles more. The iron tyre in present use is usually worn out in 3,000 miles. It is probable that gutta percha will be used for the same purpose. We intend to make a trial on our garden barrows.—N. B. *Horticulturist.* [We suspect that gutta percha, in the hothouse at least, may rather retard work by its adhesive property than promote it by its elastic. In summer heat it is quite soft.]



**MALLEABLE BRASS.**—I caused an alloy to be made by melting together sixty parts copper and forty parts zinc, which had the following properties: the colour was between that of brass and tombac, it had a strong metallic lustre, a fine close-grained fracture, and great solidity (density). The alloy is harder than copper, very tough, and is, in a properly managed fire, malleable; so much so, that a key was forged out of a cast rod. It might be advantageous in practice, in place of zinc, to add, in melting, proportionate mixture of brass to the proper proportions of copper. An alloy prepared in this way gave, on analysis, 61'44 copper and 38'15 zinc.—**DR. L. ELSNER.**

**ARCHITECTURAL ASSOCIATION.**—On the 13th inst. a paper was read by Mr. C. Creeke, entitled a "Systematic Arrangement of Aesthetic Principles, suggestive of an improved Method of Studying Architectural Art." "Our object," said the writer, "is to attempt to reason out and analyse our ideas and perceptions of art, so as to trace them to their origin and source, —to endeavour to ascertain how far such ideas as are practically working in the imagination, and so constituting our axioms of art (in other words forming, regulating, and directing our taste), may be grounded upon experiences having the force of universal admissions, and regarded by some as of the nature of instruction; or, secondly, upon such axioms as are inducted from those laws which are alike common to the realisation of the beautiful in nature as in art; or, thirdly, upon such laws as are correlatives to the ideas and expressions furnished by nature, and which it is the aim of art to embody." The present paper, therefore, "attempted to give a cartoon or sketch map of the theory and definition of art so as, under a series of axioms, purporting to be the rationale of art, might subsequently be gathered into proportional form, those principles which are the admitted standards of cultivated taste." On the 3rd of January, 1851, a paper will be read by Mr. J. P. Seddon, on "The Relations of Architecture with Painting and Sculpture."

**ENTRANCES TO THEATRES.**—I was much pleased in perusing a recent number of your publication (Dec. 14th) to see that you had called attention to one of the greatest and most dangerous nuisances which the public have to put up with. I allude to the badly planned (I might almost say wickedly and cruelly planned) entrances to our theatres and other public places of amusement. Often would my family and myself visit the theatres, but the dread of the fearful "infernal machine," through which every individual must pass (to say nothing of the indelicate crushing and squeezing, especially for the ladies, which have to be first endured), before admission can be obtained, prevents us, as no doubt it does thousands of others, from doing so; and therefore I trust the subject will not be allowed to sleep until the managers of every theatre (if not for the comfort of their patrons, for their own interest sake) have remedied the evil in question. Indeed, a licence ought not to be granted to any house where ample provision is omitted to be made, not only for the ordinary ingress and egress, but in case of fire, for the speedy and safe emptying of the house.—**G.E.G.**

**CITY CROSSINGS.**—With reference to a recent article in your pages on the subject of the City crossings, I would mention one very much worse than either of those to which the writer alludes.—I mean the crossing at the top of Cornhill, where Bishopsgate-street, Cornhill, Leadenhall-street, and Gracechurch-street intersect each other. Holding offices which overlook what may truly be termed that dreadful spot, I am daily not only compelled to witness all kinds of cruelty and to hear language of the coarsest and most profane description, but what is far worse, accidents of a more or less serious character. My attention was, a few minutes since, arrested by screams intermingled with shouts, and on going to the window I beheld a truck disabled and lying bottom upwards on the pavement, its contents rolling in the kennel. In the middle of the street lay a horse and gig on their sides, eight or ten men falling on the head of the poor animal to keep it down, while its unfortunate owner was being taken into an adjoining house with his arm broken. Now, sir, if this were only a solitary instance I should not have troubled you, but when, as I said before, such things are of almost daily

recurrence, I feel it my duty to endeavour to enlist your sympathies on behalf of the public, and to beg of you to exercise your influence towards the removal of so disgraceful a state of things.—**A. B.**

**INTIMIDATING WORKMEN.**—On Friday week, at the Manchester Borough Court, a working man was charged with conspiracy, under the Intimidation Act. Messrs. Sharp, Brothers, of the Atlas Works, had reduced the wages of the strikers from 17s. to 16s. per week, and a turn-out amongst the workmen had ensued. Mr. Maude pointed out to the prisoner the reasonableness of the law, which, while it allowed men to work, or to refuse to work, at any price they thought proper, would not suffer one workman to prevent another from working for such wages as he might choose to take. The prisoner was committed for fourteen days.

**BOILER EXPLOSIONS.**—A proprietor and an engine-tenter of Lily-lane-mill, Halifax, are to be tried at York, in the spring, for the manslaughter of twelve persons, through one of the boiler explosions lately noticed. The coroner's jury attributed the explosion to the unsafe state of the boiler (on evidence, we believe, of Mr. Fairbairn, of Manchester, and others), and the excessive generation of steam, the former attributable to the proprietor's negligence, and the latter to that of his engine-tenter. The jury also deprecated the erection of buildings over boilers, and recommended the adoption of the most suitable safety valves that have been or can be invented. In a point of so great importance we need here make no apology for again referring to an ingenious invention by Mr. Strong, of the steam-printing establishment of Messrs. Cox (Brothers), 75, Great Queen-street, Holborn, by which the boiler itself is actually made to indicate and warn the engineer of its own wants by ringing for water, &c.

**GREAT COLLECTION OF MEDALS, COINS, AUTOGRAPHS, AND HISTORICAL RECORDS.**—A collector for thirty years, signing himself "G. H. C." care of Mr. Weale, of Holborn, in the advertising columns of the *Times*, is addressing "the savans of all nations," on the disposal of his "great historical collection," for 15,000*l.*, two-thirds of it in the shape of "an approved estate," if more convenient than cash. The collection is said to contain 70,000 articles, among which are "31,000 Historical Manuscripts and Autograph Letters, dated from 1473 to 1848, Henry VII. to Queen Victoria, Louis XI. to Prince Louis Napoleon, President Washington, U.S., to President Polk; also the kings, queens, princes, rulers, and eminent persons of twenty other nations, arranged alphabetically and illustrated with their portraits, in more than 100 folio volumes and sections, many of the Commonwealth of England, the Revolution of 1688, the Republic, the Consulate, and the Empire of France, the French and other Revolutions of 1848." The names of a great number of men of science, art, and literature, appear in his list of autograph papers, &c.

**CONTRACTORS' ACCOUNTS: HARD WORK FOR A JURY.**—In a cause which lately came on in the Court of Common Pleas, Mr. Rolit, as contractor for harbour works at Portsmouth, pursued the harbour company for a balance due, with extras, including one of four instalments of the sum of 10,593*l.*, the original amount of the contract-estimate. On presentation of the bill of particulars, it appeared that the jury would have to adjudicate on upwards of 20,000 items. The Lord Chief Justice's patience revolted at the bare contemplation of the task. His lordship recommended arbitration, as it was a physical and moral impossibility for any jury of twelve men to go through with such a case. The plaintiff insisted on going on, and the judge resignedly thanked his stars he "could only sit on it till Tuesday next, which was one consolation. It became so palpable at length, however, that the judge was right, that an arbitration was at last agreed to."

**COALITION OF GAS COMPANIES.**—The London, Equitable, and Chartered gas companies are now seeking to obtain an Act of Parliament for the amalgamation of their interests, and the parishioners of St. James's, Westminster, have resolved to support the Western (Cannel Coal) Gas Company, and to watch the progress of the Amalgamation Bill

in Parliament. We trust that very stringent clauses for the public behoof will be inserted in that Bill, if the Parliament decide on allowing it to pass. The ostensible purpose of the companies is a good one, whatever their real object may be, viz., to enable them, by economical arrangements, to meet the public demand for reductions in price. Such an amalgamation, however, of companies who have already incurred so much of the expense of separate establishments; is not now needed merely for a purpose which will yield its own return in increased profits and prosperity.

**LENGTH OF METROPOLITAN GAS MAINS.**—Some correspondent, we think, lately asked us the estimated length of the gas mains in the metropolis. We find we have not yet answered the question. We may now state, therefore, that it is estimated that there are upwards of one thousand five hundred miles of mains ramifying throughout the streets of London. We are inclined, however, to think that even this is too low an estimate.

**LECTURE ON FRENCH ART.**—At the People's College, Sheffield, Mr. Young Mitchell, of the local School of Design, lately lectured "On French Art, and the facilities for its prosecution in France." The lecturer said that the superiority of Paris, Lyons, and other towns of France in the arts was owing to assiduous study on the part of the operatives, and the liberal support afforded by the Government. The only weapons with which to combat them are schools of design. In order that they may effect the objects contemplated, let all support these. "Remember," he added, "while I have praised the encouragement given to French art, I do not praise French art itself: pretty it is, but corrupt in taste, melodramatic in character, and wanting in all those qualities which constitute high art."

**ELECTION OF SURVEYOR BY SWANSEA BOARD OF HEALTH.**—This election took place on Tuesday, the 17th inst. There were upwards of one hundred candidates, which number was reduced to seven, and eventually to three, previous to votes being recorded. The selected parties were Mr. Jones, of Swansea; Mr. Gant, late of the Metropolitan Sewers Commission; and Mr. J. C. Reynolds, also an officer of that board. The council then proceeded to outvote one of these gentlemen, when the final contest was found to be between Messrs. Gant and Reynolds, and ended in Mr. Gant being elected.

**THE CASSLAND ESTATE AND VICTORIA PARK.**—A very good plan, by Mr. Wales, of the north-eastern portion of the metropolis, prepared to show the contemplated improvements in the Cassland estate, Victoria Park, &c., has just been published. The Victoria Park is a fine extent of land, about 260 acres, planted and turfed. Building operations in this district have been sadly impeded, we understand, by the tardiness of the Commissioners of Woods in reference to approaches. Three times they have given Parliamentary notices for a Bill, and yet have done nothing. They have built a handsome lodge, bridge, &c., &c., but the public cannot find their way to them.

**MR. RITCHIE, SCULPTOR.**—Another British artist has died in Rome, after a very brief illness.—Mr. Ritchie, a sculptor from Edinburgh, who had arrived in Rome during the month of September. His death is attributable to an excursion he made a few weeks ago with some friends to Ostia, where, ignorant of the effects of the climate, and of the precautions necessary to be taken in it, he caught the malarian fever, and expired after his return to Rome.

**BOARD OF HEALTH, TOTTENHAM.**—With reference to your paragraph last week, the "three compulsory rates" making 10*d.*, do not include, as stated (?) the "water-rate;" nor is that rate considered a compulsory rate. Few houses in the district, it is considered, I believe, will exceed 2*s.* or 2*s.* per annum for water.—**H.**

#### TENDERS

For building Saint Peter's National School, with residence attached, for Master and Mistress, Saint Peter's street, Bethnal-green. Mr. Mason, architect.

Holland	£2,197 0 0
Joseph Wilson	2,150 0 0
Locke and Nesham	2,150 0 0
Fritchard and Son	1,987 0 0
Asby and Horner	1,985 0 0
R. and E. Curtis	1,982 0 0
Piper	1,952 0 0
Wm. Hill, accepted	1,946 0 0



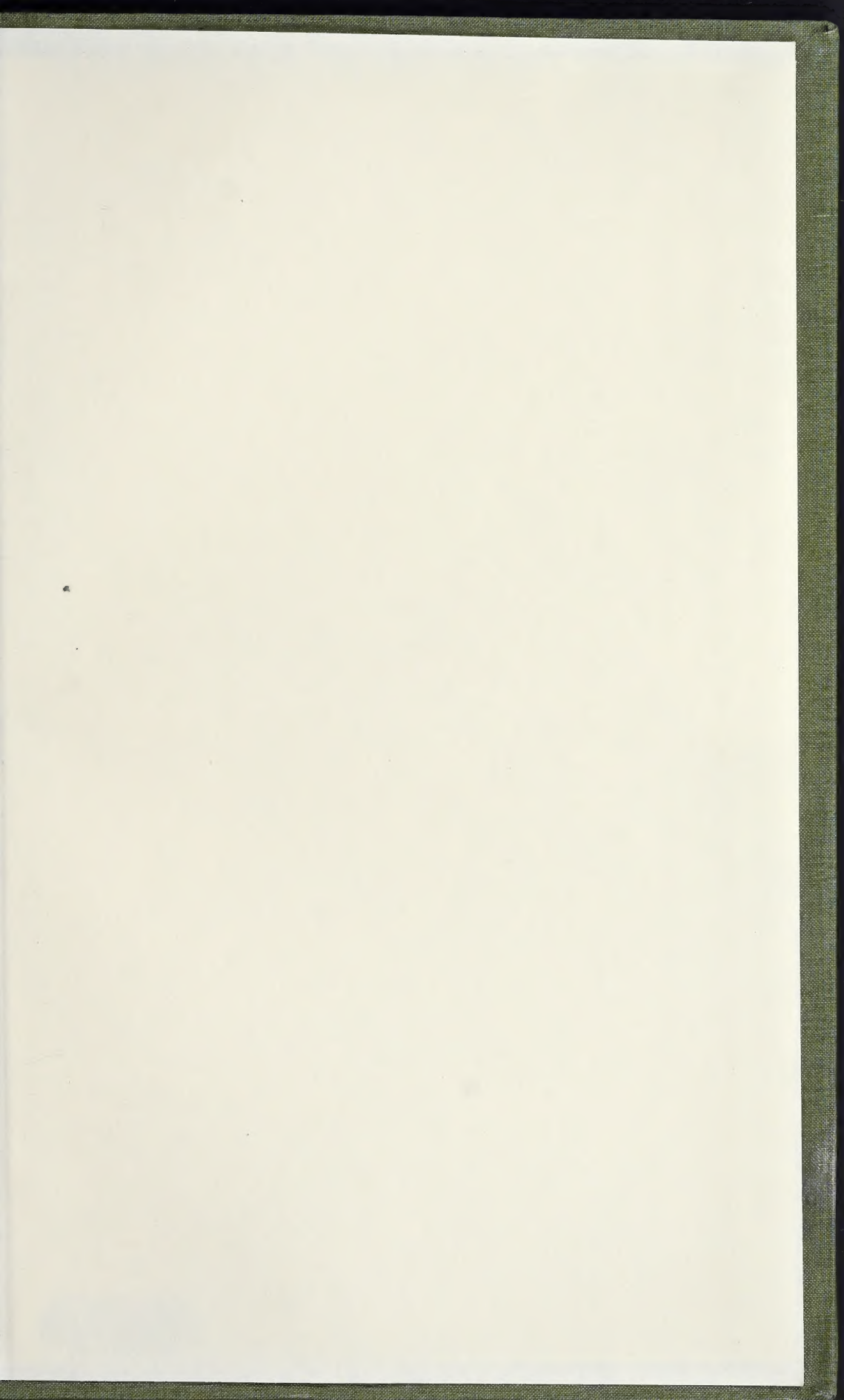
After the 1st of January, 1851.

have prevailed; furniture or buildings painted with it are at once disinfected. Paralysis and Painters' Cholera are avoided by its use, as well as all similar results to the occupants of newly painted rooms. Apartments may be immediately occupied, without injury to the health of the inmates, or the most delicate constitution. It becomes cheaper than common paint, from its spread over a much larger surface. 2 cwt. of this paint covers 1000 sq. ft. of the name "Hubbuck London Patent," as the style of the Manufacturers, is stamped on the inside of the main body of the can. THOMAS HUBBUCK and SON, Colour Works, opp-site the London Dock.















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